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No. 27

## TWENTY NEW LAKE STEAMERS FOR 1903.

Twenty steel steam vessels, capable of carrying 70,550 tons of freight per trip and to cost \$4,380,000 are already under order with the American Ship Building Co. (consolidated lake yards), for delivery in 1903. Particulars of these vessels will be found in the table on this page. Possibly one of them, a freighter building at Detroit for the Anchor line of Buffalo, will be finished before the close of navigation this year. This summary does not, of course, represent all the new work which the American company has in hand. Several vessels ordered last winter are still unfinished. At the Cleveland and Lorain yards are two large freighters for Capt. John Mitchell of Cleveland and one freighter for the Messrs. Hawgood of Cleveland, as well as a large car ferry for the Flint & Pere Marquette Ry. Co. yet to go into commission; at Chicago a 5,000-ton freight steamer for E. D. Carter of Erie, which was launched Saturday; at Bay City a 5000-ton freight steamer for E. A. Stewart of Detroit, which will be launched on the 8th inst.; at West Superior a 5000-ton steamer for the Provident Steamship Co., of which A. B. Wolvin is manager, and at Buffalo a large steel freight barge for the Franklin Transportation Co. of Cleveland, of which D. R. Hanna is manager.

Of the list of twenty steamers to come out in 1903, eleven were ordered within the past week. Capt. W. W. Brown of Cleveland added one to his list of new orders, making six instead of five new vessels which he is to have next spring, and Mr. A. B. Wolvin of Duluth, who recently organized the Great Lakes & St. Lawrence Transportation Co. for the development of trade down the St. Lawrence to Quebec, contracted for the ten steamers of Canadian canal size that have been talked of for some time past. These ten vessels are all of a size. They are to navigate the Welland canal and the canals of the St. Lawrence river which puts a limit upon length and beam. They will differ from the ordinary construction of canal steamers in that they will have no 'tween decks but will be built with open holds. In this respect they present a radical departure from

## STEEL CORPORATION AFFAIRS.

During the past month or two, or ever since the directors of the United States Steel Corporation sought to convert \$200,000,000 of the preferred stock of the corporation into \$200,000,000 worth of bonds, and to issue \$50,000,000 worth of bonds additional to obtain cash, both stocks of this giant corporation have sagged. On April 1, the day on which the directors adopted this plan, the common stock closed at 42½ and the preferred at 94½. Since then both issues have steadily declined, the common stock selling this week at 37½ and the preferred at 88¾. The litigation, consequent upon the announcement of this conversion plan, has brought out many interesting facts and has caused many pertinent questions to be asked. We must confess that we do not quite see the sense of paying dividends upon the common stock and then issuing bonds to obtain cash. Since the Steel Corporation was formed a year ago it has paid to its common stockholders \$20,309,000. That is up to March 31, 1902, it had distributed this sum among its common stockholders. A further distribution of 1 per cent., which amounts to a little over \$5,000,000, has now been ordered. Why should the directors of the Steel Corporation distribute this money to the holders of common stock if the corporation is in need of cash? If it had merely retained during the fifteen months of its existence the money which it has given to the common stockholders it would have now in its treasury one-half the sum which it is seeking to acquire by issuing bonds. We do not believe that the directors have done a wise thing in putting the common stock upon a dividend paying basis. In our opinion the common stock is not entitled to a dividend. When the Steel Corporation was organized a generous value, measured even in preferred stock, was placed upon the underlying plants. The preferred stock doubtless amply covered the tangible property and earning power of the corporation. It is well known that Mr. Carnegie offered his interest in the Carnegie company to Mr. Frick one year before the Steel Corporation was formed for \$100,000,000. It is understood that

## Leading Features of Twenty Steel Steamers under Contract with American Ship Building Company for Delivery in 1903.

To be built at	Type.	Dimensions in Feet.				Dimensions of engines.	Boilers—Dimensions in ft. and in.	Draft.	Steam press. lbs.	Capacity, gross tons	Value.	For Whom Building.
		Over all.	Keel.	Beam.	Depth.							
Cleveland	Car ferry	350	338	56	19½	23½, 37, 62x36 (2).	Six Scotch, 13-9x12.	Natural	175	.....	\$400,000	Manistique, Marquette & Northern Ry.
Lorain	Cargo stmr.	434	414	50	28	22, 35, 58x40	Two Scotch, 13-2x11-6	Ellis & Eaves	170	6,200	275,000	H. A. Hawgood, Cleveland.
Lorain	Cargo stmr.	434	414	50	28	22, 35, 58x40	Two Scotch, 13-2x11-6	Ellis & Eaves	170	6,200	275,000	W. W. Brown Syndicate, Cleveland.
Lorain	Cargo stmr.	400	380	50	28	22, 35, 58x40	Two Scotch, 13-2x11-6	Ellis & Eaves	170	5,600	260,000	W. W. Brown Syndicate, Cleveland.
Lorain	Cargo stmr.	400	380	50	28	22, 35, 58x40	Two Scotch, 13-2x11-6	Ellis & Eaves	170	5,600	260,000	W. W. Brown Syndicate, Cleveland.
Lorain	Cargo stmr.	400	380	50	28	22, 35, 58x40	Two Scotch, 13-2x11-6	Ellis & Eaves	170	5,600	260,000	W. W. Brown Syndicate, Cleveland.
Chicago	Cargo stmr.	400	380	50	28	22, 35, 58x40	Two Scotch, 13-2x11-6	Ellis & Eaves	170	5,600	260,000	W. W. Brown Syndicate, Cleveland.
Chicago	Cargo stmr.	390	370	48	28	20, 33½, 55x40	Two Scotch, 12-6x11-6	Ellis & Eaves	170	5,250	250,000	W. W. Brown Syndicate, Cleveland.
West Superior	Cargo stmr.	255	241	41	18	15, 25, 42x30	Two Scotch, 13x12	Natural	170	*2,200	150,000	Great Lakes & St. Lawr. River Trans. Co.
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West Superior	Cargo stmr.	255	241	41	18	15, 25, 42x30	Two Scotch, 13x12	Natural	170	*2,200	150,000	Great Lakes & St. Lawr. River Trans. Co.
Detroit	Cargo stmr.	255	241	41	18	15, 25, 42x30	Two Scotch, 13x12	Natural	170	*2,200	150,000	Great Lakes & St. Lawr. River Trans. Co.
Detroit	Cargo stmr.	255	241	41	18	15, 25, 42x30	Two Scotch, 13x12	Natural	170	*2,200	150,000	Great Lakes & St. Lawr. River Trans. Co.
Buffalo	Cargo stmr.	255	241	41	18	15, 25, 42x30	Two Scotch, 13x12	Natural	170	*2,200	150,000	Great Lakes & St. Lawr. River Trans. Co.
Buffalo	Cargo stmr.	255	241	41	18	15, 25, 42x30	Two Scotch, 13x12	Natural	170	*2,200	150,000	Great Lakes & St. Lawr. River Trans. Co.
Chicago	Cargo stmr.	255	241	41	18	15, 25, 42x30	Two Scotch, 13x12	Natural	170	*2,200	150,000	Great Lakes & St. Lawr. River Trans. Co.
Chicago	Cargo stmr.	255	241	41	18	15, 25, 42x30	Two Scotch, 13x12	Natural	170	*2,200	150,000	Great Lakes & St. Lawr. River Trans. Co.
Detroit	Pass. & frt. stmr.	362	340	45	28	22, 31½, 45, 65x42.	Four Scotch, 12½x11½.	Howden	210	3,500	350,000	Anchor Line, Buffalo.
Detroit	Cargo stmr.	372	350	46	30	19, 27, 40, 58x42.	Three Scotch, 11½x11½.	Howden	210	5,000	290,000	Anchor Line, Buffalo.
Total										70,550	\$4,380,000	

\*On 14 ft. draught; all other capacities based on 18 ft. draught.

the ordinary package freighter of the lakes, resembling more nearly the usual type of ocean construction as far as cargo space is concerned. They will accordingly be equipped with winches and derrick booms, after the manner of ocean steamers, for the handling of cargo. They are expected to carry 75,000 bushels of grain on 14 ft. draught. Particulars of all the new vessels above referred to will be found in the table.

It is quite probable that the Detroit works of the American company will shortly book an order from the Detroit & Cleveland Navigation Co. for two large side-wheel passenger steamers that will be as costly as the Eastern States and Western States, which have just opened up the Detroit-Buffalo route and which are among the finest side-wheelers in the country. Officials of the Detroit & Cleveland company have ordered plans and specifications for the new steamers and it is generally expected they will decide to build in time to get the new vessels for next year.

## TURRET STEAMERS FOR CANADIAN LAKE TRADE.

The turret type of vessels that are to engage in the Canadian grain trade on the lakes, and which have been sent over from England by Wm. Peterson, Ltd., of Newcastle, are not new to readers of the Review. Shortly after the first whaleback was built on the lakes, the first of the turret vessels was built in England. Large numbers of them have since been built, and all for the Newcastle concern. One of them was illustrated in the last issue of the Review, bearing on deck two of the canal boats that are being shipped to the Philippines to engage in a lightering business at Manila. The three steamers of this new type that are to engage in the Canadian grain trade are the Turret Cape, Turret Court and Turret Chief. The vessels are practically duplicates—253 ft. long, 44 ft. beam and 19.4 ft. depth. The beam of 44 ft. will make them a close fit for the Canadian canal locks, but it is expected they will engage mainly in grain trade between Port Arthur and Georgian bay ports. The Inland Lloyd's Register has given them a rating of A1 and valuation of \$110,000 each. The name turret evidently comes from the steeped extension form of deck.

The torpedo boat destroyer Hull was launched this week by the Harlan & Hollingsworth Co., Wilmington, Del. The boat is named in honor of Commodore Isaac Hull of Constitution fame. She is 245 ft. long, 23 ft. extreme breadth and at 6 ft. 6 in. mean draught displaced 408 tons. She is equipped with twin-screw, four-cylinder, triple-expansion engines and has four Thornycroft water-tube boilers.

he was provoked when Mr. Frick and his associates failed to realize this sum and were forced to abandon their option. Yet one year later Mr. Carnegie received \$304,000,000 in 5 per cent. bonds for this self same interest. Truly Mr. Carnegie's property had developed during the year but it is not conceivable that it had developed to any such extent as that. This mortgage which Mr. Carnegie holds we consider to be the best in the world, for it is founded upon ore fields which cannot be duplicated anywhere else, upon coal fields of vast extent and upon a splendid chain of steel making plants. The value of the Lake Superior ore deposits does not alone lie in their richness and abundance but in the fact as well that they are favored with the cheapest rate of transportation ever known and which it is impossible to obtain elsewhere. Therefore, should vast deposits of ore be discovered elsewhere the furnace-cost of Lake Superior ore is likely to remain the lowest. But we submit that Mr. Carnegie's mortgage and the preferred stock in addition pretty thoroughly cover all that is tangible or prospective in the valuation of the properties of the Steel Corporation. We are quite aware that this great company is prosperous, amazingly so, but we are not aware that its prosperity is to continue indefinitely. On the contrary it is likely to have its bad years the same as any other enterprise and it should be the part of wisdom to provide for them. Distributing dividends upon a non-asset representing stock and at the same time saddling a mortgage upon the property in order to get cash does not impress us as measures of great foresight. The interest on that bond issue must be paid whether or no. This is the one feature of the bond conversion plan that we don't like—the transfer of a preference charge into a fixed one. The difference between interest and dividends is that one is must and the other is may. Interest must be paid but dividends may be skipped. No corporation would think of guaranteeing dividends; but banks guarantee interest by foreclosure. However, we have no doubt that the Steel Corporation is thoroughly sound and that it will always be able to meet the interest on its bonds should the conversion plan be declared to be legal. We are, on the whole, agreeable to the bond conversion plan as far as the stock is concerned; but this plan of granting mortgages just to get cash when the money can be secured by the retention of dividends impresses us badly. It leaves the directors open to the suspicion, already given voice to in some quarters, that dividends were paid upon the common stock to give it tone while the insiders were unloading. The corporation continues to be immensely prosperous. The net earnings for the quarter ended June 30 were \$37,691,696, as against \$26,362,000 for the corresponding quarter of last year.



### NAVAL APPROPRIATION BILL.

This year's naval appropriation bill is, on the whole, more of a source of disappointment to the naval service at large and to the officials of the department than any similar measure has been for many years past. There is cause for gratification to the personnel, however, in the fact that several important provisions failed which were aimed to prevent the retired list from becoming overcrowded through large numbers of volunteer retirements, and the repeal of a section allowing officers with certain service to retire with the rank and pay of the next higher grade, which lately has led many to relinquish active service. The bill fails to grant any increase in the staff corps so urgently recommended, except in the construction and civil engineer corps, which receive only slight increases.

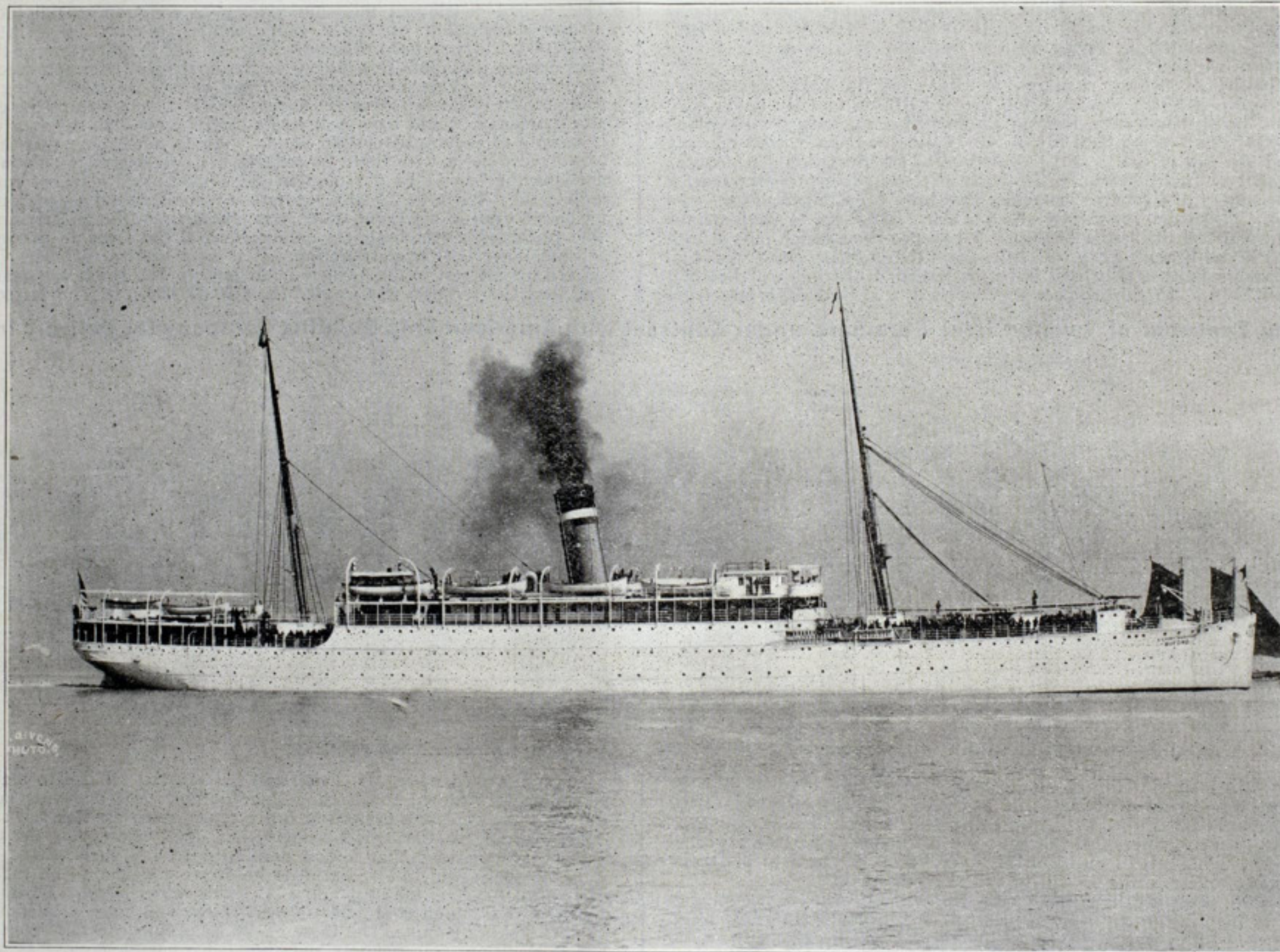
The usual annual increase in the number of enlisted men, however, is made so that with the present authorized strength the total number of men with apprentices allowed the navy is 25,000, or a number equal to the standing strength of the army a year preceding the Spanish war. The marine corps benefits to the extent of securing an increase of 700 men, while the commandant is promoted to the rank of major-general. No additional officers, however, are provided.

For several years past there has been a tendency on the part of congress to increase the enlisted forces of both navy and marine corps, while studiously refusing, however, to authorize a single additional officer in the line or cadet at the naval academy, with the result that there are not

decided that the immense amounts asked this year should not be granted, and allows the entire subject to go over until next session.

The program of increase contained in the bill is what was recommended by the secretary of the navy, but does not accord with the ideas of the average naval officer regarding the number of ships that should have been provided for. The president would have readily accepted provision for a larger increase, since last session no additional ships were authorized. Under the bill two battleships of at least 16,000 tons, two armored cruisers of 14,500 tons and two 1,000-ton gunboats are the total number authorized. These ships, however, are to be constructed at once and upon plans already accepted by the experts. The battleships will be monsters and about 300 tons larger than any warship now afloat or building. The bill strikes a blow at the submarine boat, which has been the subject of much controversy all session, and contains no provision for their construction, although the senate conferees sought to have the amendment providing for five accepted. The navy is directly responsible for the defeat of this type and waged a war so incessant against any being provided that the senate conferees finally yielded to the house. The corps of construction and civil engineers are increased by six officers each, but no provision is made for increasing the corps of surgeons or paymasters. No change is made in the present system of examining cadets for admission to the naval academy and no provision is contained for expenses of the board of visitors to the naval observatory.

The bill provides that one battleship shall be built in a government



(Photograph by J. D. Givens, San Francisco, Cal.)

UNITED STATES TRANSPORT BUFORD.

In the San Francisco-Manila Service.

sufficient officers for the ships. While the enlisted force has steadily grown from 12,000 men a few years ago to double that number, the line officers remain the same with the present large navy, as the naval register showed fifteen years ago, exclusive of the additions received from an amalgamation with the engineers under the personnel act. Relief is to be afforded through an increase in the annual output of the naval academy, where the corps of cadets is to be enlarged by two additional appointments from each state and five more at large appointments credited to the president. This will afford an increase of ninety-five cadets and bring the total authorized number to nearly 500.

For the first time since the civil war congress allows in a naval appropriation bill additional cadets, the effect of which will be to gradually increase the strength of the lower grades of commissioned rank and in time provide the number of officers required by the navy. "Midshipman," a term dear to the hearts of every naval officer and abandoned twenty years ago for the meaningless title of naval cadet, is again restored by the bill. Congress for ten years steadily declined to change the name for no reason that was ever accepted as logical. Hereafter the young men sent to Annapolis will be known by the title which Dewey, Sampson and Schley bore when they first started on their naval careers. There is to be found in the present naval bill the distinct enunciation of a policy against expenditures of large sums for the establishment of naval plants in the colonies through the refusal to provide for the location of a naval yard at Subig bay and extensive improvements at Cavite, San Juan and other naval stations abroad. The committee having charge of the bill

yard. The house provision was that one battleship, one cruiser and one gunboat should be built in the navy yards. The senate struck this out and provided that the two battleships, two armored cruisers and the two gunboats authorized should be built by private contract. The compromise as noted was to build one battleship by the government.

### PROPOSE TO ENLARGE THE ROACH SHIP YARD.

Mr. Osborn Congelton of No. 25 Broad street, New York, in reply to a letter regarding the reorganization of the Roach Ship Yard at Chester, Pa., under the title of the Delaware River Ship & Engine Building Co., says:

"The officers of the company are Mr. John B. Roach, president; Mr. Osborn Congelton, vice-president; Mr. D. E. Ford, treasurer and general manager; and Mr. E. L. Levy, secretary. It is the purpose of this company to enlarge the capacity of the yards immediately and to install the most modern tools for the construction of ships. Work will begin immediately on a new sectional dry dock capable of taking any ship afloat. The keel of a sister ship to the City of Memphis we lay this week and immediately thereafter, as quickly as preparations can be made, the yard will be placed in full operation."

The Clyde line steamer Apache is now at Cramps, Philadelphia, where she is to be lengthened 52 ft. and supplied with two new additional boilers.

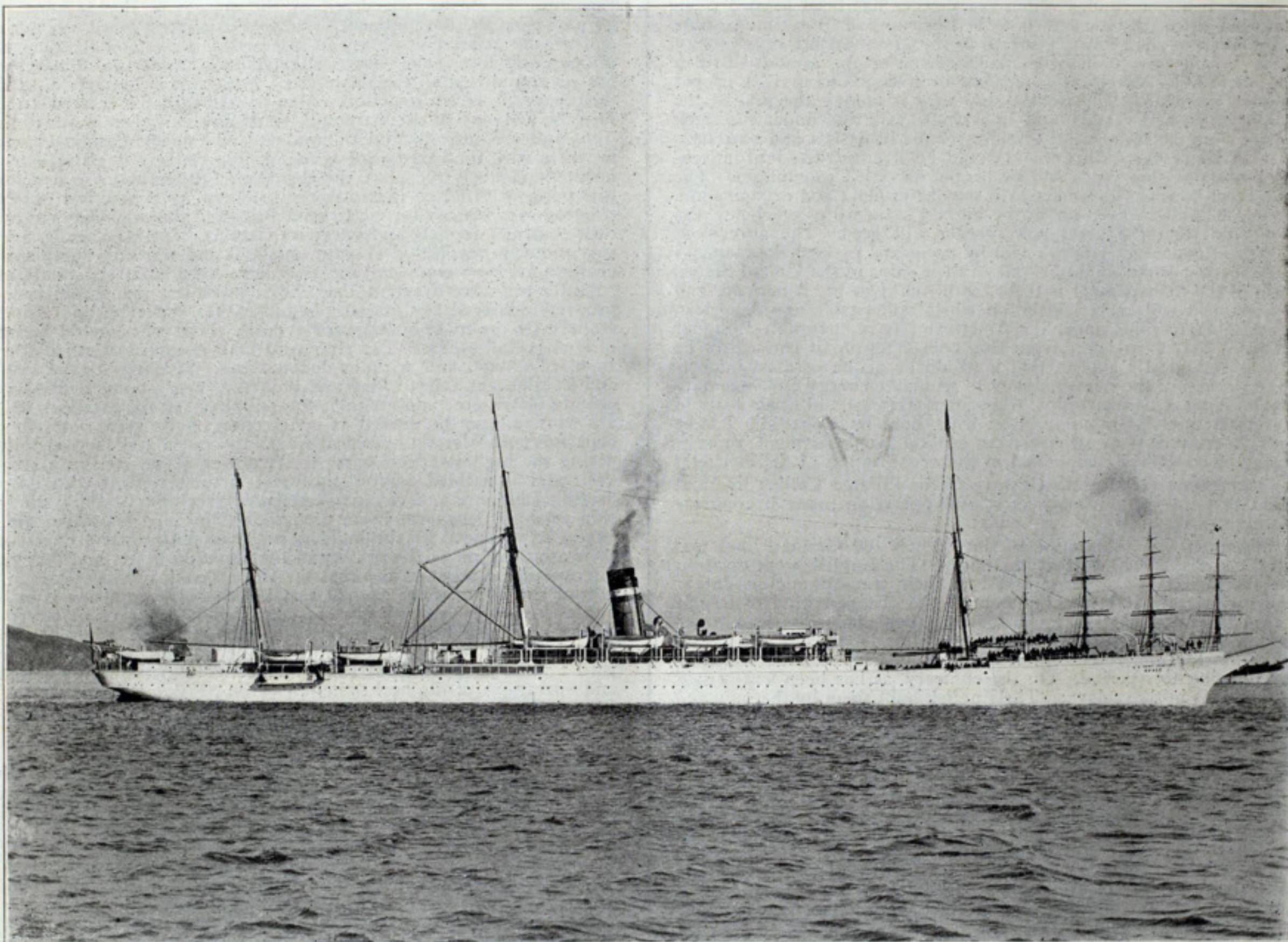


### PROPOSED SHIPPING EXPOSITION IN HAMPTON ROADS.

Dispatches from Newport News say that it is proposed to hold a great exhibition, after the one in St. Louis in 1904, at Hampton Roads, Virginia, in 1907, under the auspices of the State of Virginia, by an organization incorporated by leading citizens of Newport News and Norfolk. A few miles up the James river from Newport News is the site of Jamestown, settled first in 1607, and as Jamestown will be 300 years old in 1907, Newport News and Norfolk propose to take advantage of the fact and hold an exhibition, to be known as the Jamestown tercentennial. If the ideas of the projectors are carried out, the Jamestown tercentennial will be unlike other world's shows. "Shipping" is the word one hears most often in the two cities, and so it is natural that they should plan an exhibition in which vessels will be much in evidence. It is proposed to have anchored in Hampton Roads ships of every description, from caravels, like those in which Capt. John Smith came over, to the most modern Atlantic liner, and most powerful man-of-war, as examples of the progress of ship building during the 300 years since Jamestown was founded. The governments of the world are to be invited to participate to the extent of sending one or more of their newest warships, and the transatlantic companies will be asked to send, from time to time, the latest fashions in ocean steamers. On the Norfolk side of the James river, opposite Newport

southern end, the Huntington purchase being in the form of a square or parallelogram. The tracks of the Chesapeake & Ohio run parallel with the river, about a mile to the east, and its terminals fill up the southern end of Newport News. West of the railroad and immediately on the river a full mile north of the railway terminals, is the plant of the Newport News Ship Building & Dry Dock Co. The city may be said to be bounded on the north by the ship yard, on the east and south by the Chesapeake & Ohio road, and on the west by the Old Dominion Land Co., the corporation holding the unsold lands along the river bank from yard to terminals.

Although there are many vacant lots in Newport News, the city has spread to the east of the railroad tracks, and several thousand persons live there. Three long bridges over the score or more tracks of the railroad unite the two parts of the city. The ship yard company employs about 5,000 men, and its pay-roll amounts to \$50,000 weekly. The railway, steamship, and coal companies together pay in wages about \$40,000 weekly, making a total of \$4,500,000 annually. The results of this distribution of money in Newport News are a population of 24,000, a handsome court house and jail, three viaducts over the railroad tracks, valued at \$200,000; the two principal streets paved with asphalt, five large brick school buildings, a sewer system costing \$250,000, three electric street railway companies, two electric light companies, and one gas light com-



(Photograph by J. D. Givens, San Francisco, Cal.)

UNITED STATES TRANSPORT MEADE.

In the San Francisco-Manila Service.

News and Hampton, it is proposed to erect buildings for exhibits of articles for ships and for those who go on the water for either pleasure or profit. Extending from the shore will be an immense structure like a coliseum or stadium, except that there will be water instead of earth at the foot of the tiers of seats. The spectators will not look at foot races, baseball, or football games, wrestling matches, and Roman chariot races, but will be shown boat races, swimming contests, naval sham fights and aquatic sports generally. As Hampton Roads is a few hours distant from Washington by both rail and water, the Jamestown tercentennial will afford the government an unusual opportunity to exhibit the navy to a large number of citizens. At other fairs the most that has been done was to show a model of a man-of-war in an artificial lake. At Hampton Roads, where real battles were fought, there is plenty of room for display.

From this it will be seen that the Jamestown tercentennial is to be a water show. Such a show has great possibilities. A Jamestown tercentennial, however, with Jamestown left out, would not do, so a permanent memorial building is to be erected at Jamestown, and in it are to be shown relics of the past, of the old Virginia before all the wars, 1861, 1812, 1776. A trolley line, now constructing, will connect Jamestown, Williamsburg and Yorktown with Newport News, while boats on the James river and steam cars on the Chesapeake & Ohio Ry. will connect all with Richmond, the successor of both Jamestown and Williamsburg as the capital city of Virginia.

Newport News, which has done so much to bring about this exhibition, has not one year of age to every ten of Jamestown's. Thirty years ago, when the late Collis P. Huntington bought about 25,000 acres for a few dollars apiece, the peninsula where Newport News now stands was a waste. The James river flows south in front of the city and east across its

pany, eighteen churches, several worth \$50,000 each, and five banks, besides a large and substantial theater, and many imposing store and office buildings. All this in seventeen years!

The ship yard had under construction last spring men-of-war and merchantmen to cost \$23,038,000. A new dry dock, said to be the largest on the American continent, will accommodate three ordinary steamships at one time, being 827 ft. long. There is another dry dock, 610 ft. long. Among several lifting cranes is one having a capacity of 150 tons.

### FRENCH EXPERT'S OPINION OF SUBMARINES.

M. Lockroy, the French minister of marine, has just published his views on submarines in the Paris *Matin*. It seems to him that these craft will be terrible instruments of attack and defense; but he considers that there is still room for progress as regards habitability and range of action. Reviewing the type of vessels which are purely and simply submarines, and are propelled exclusively by electricity, with a limited range of action, M. Lockroy expresses the opinion that this class must be used solely for coast defense work, while it would be impracticable to tow them. For carrying on operations at a distance, the writer thinks it would be preferable to rely on submersible boats, which have the drawback that they cannot be submerged very quickly. He considers, nevertheless, that the time occupied by this operation—8 minutes—is sufficiently short, and, moreover, it will soon be reduced to 5 minutes. M. Lockroy finally comes to the conclusion that it will only be possible to fight against submarines when the steering of balloons has been discovered, the black form of the vessel being very easily distinguished in the water from a certain height.



### MR. CHARLES H. CRAMP ON THE STEAMSHIP MERGER.

In the current issue of the North American Review Mr. Charles H. Cramp has a splendid article upon the Morgan steamship merger. He has written it in reply to questions from various sources as to what effect the merger is likely to have upon the future of ship building in this country. In his preface he says:

"I see in the situation no cause for alarm either to the American ship builder or ship owner or to the people in this country who rely upon transatlantic steamship lines to transport their products abroad, provided our government will take adequate measures to meet the policy already operating in Great Britain and Germany. I am sure that it is not the intention of those who control or are to control the merged lines to raise materially the prices of ocean freights either way. Their object is rather to maintain a uniform rate or schedule of rates, and to add to their profits by the general reduction of operating expenses; also to prevent the ruinous rate wars which have occurred under the old regime. If they can establish and maintain a uniform schedule of rates upon which shippers may confidently rely for a long time in advance, they will confer a substantial benefit upon the commercial public.

"Coming now to consider its effect upon ship building in this country, I may say that it is commonly reported and generally believed that part of the arrangement under which the merger has been formed is an agreement that all of the new vessels to be built abroad from time to time for the combination shall be constructed at the great Belfast ship yard of Harland & Wolff, now under the management of the famous British architect, Mr. Pirrie. Such an agreement or understanding is a proper thing in such premises. The Belfast ship yard is among the first of the best foreign yards, and vessels built in a single yard and under the same management must be more nearly homogeneous in design and structure, and better in all respects, than they would be if constructed promiscuously in all sorts of ship yards and by people of varied capabilities. The Belfast concern, however, extensive as it may be in plant and organization, would hardly be able to keep up, at the highest standard of efficiency, the number of ships that the great new merger will need. The agreement with the Belfast concern, therefore, will by no means prevent the management of the merger from building some of their ships in the United States, if a section of the management is to be, as it ought to be, American, and if our government will enact legislation which will enable any American to build and operate ships under the American flag as favorably as under foreign flags. But, even apart from this consideration, it can easily be shown, or must logically appear, that it would be of the greatest importance to the success of the new company to stimulate energy and ingenuity abroad by building American ships, whose performance and quality would be put in competition or in comparison with those built abroad. I have no doubt that some sort of an American section, or department, or subordinate company, will be maintained in the organization of the merger."

Mr. Cramp then recounts the history of the ill-fated Collins line and asserts that that line would be in successful operation today if congress had not withdrawn its subsidy. He adds:

"At this time, the competition of the French and German lines was not sufficient to disturb the British monopoly. The English went on from that time increasing the size and speed of their transatlantic passenger ships, and turning out immense numbers of the cheapest kind of freight ships, called 'tramps,' but the improvements they made in ocean liners were not commensurate with the rapidly increasing demands of the traveling public. As for the freight ships, no improvement was attempted in them at all during this period. On the contrary, as has been wittily said of the tramp ships in those days: 'The English built them by the mile and cut them off in lengths to suit.'"

Mr. Cramp attributes the decline of British supremacy in the ocean carrying trade to the South African war when such an immense quantity of tonnage was withdrawn for transport service. He then recounts the rapid strides made by Germany during the past ten years and says: "The result is that Germany has practically taken the first place in the ocean carrying trade and Great Britain has been relegated to the second place. Of course there is a great deal more British tonnage than German tonnage, but the German ships are nearly all of modern types, many of them new and in the total average superior in capacity and performance to the total average of British tonnage in the ratio of more than two to one." Mr. Cramp then adds:

"At this moment, certain American steamship men, perceiving the desperate condition of the British merchant marine, and not having obtained assistance to American shipping from our own government, saw that there was an opportunity for heroic treatment, and they secured the assistance of Mr. Morgan in a scheme to Americanize in fact, if not in name, a very large amount of hitherto foreign ocean steam tonnage. This, however, was only the beginning of what has since occurred. The so-called merger as it stands, though not of British conception or British origin, may prove the salvation of the British merchant marine. The English were helpless in the matter, because they apparently had no mind or personality of their own capable of organizing it. But it has aroused the British public from the lethargy of years' duration and has turned their normal self-complacency into an almost feverish realization of the actual conditions which confront them. This was the reason why certain English steamship lines so readily and so gladly fell in with the plans of Mr. Morgan and his associates in the merger. The British newspapers and other organs of public expression took great alarm, and professed to see in this merger the beginning of their downfall. The greatest British newspaper coined the term 'Morganeering' as a descriptive epithet. Still, the common-sense left in England even on this most delicate of subjects, has been strongly and ably voiced by Lord Brassey at the annual meeting of the London chamber of commerce, of which he is president. This meeting occurred on May 28 last, and it was so numerously attended that the room in which the annual meeting has been held from time immemorial could not accommodate the crowd, so that it had to be adjourned to a more spacious place. In the course of his presidential address, Lord Brassey said that it was idle for the British to expect or claim a monopoly of the North Atlantic; it was certain that, sooner or later, some movement similar to that initiated by Mr. J. Pierpont Morgan would be brought about by the United States. He then proceeded as follows: 'Let us not lose our national dignity in unavailing and groundless alarms. Our position as a maritime nation is assured, and we shall hold our position against all

comers because we build ships more cheaply and, with or without foreign crews, sail them more cheaply than any of our rivals.'

"Lord Brassey admitted, however, that the British ship builders must look to their laurels in the construction of ocean steamships of the type of the Hamburg-American line steamer 'Deutschland,' and he urged more liberal subsidies for mail-carrying."

Mr. Cramp hopes that a great English merger organized upon somewhat similar lines to the British merger may be effected on the ground that it will be to the general advantage of the commercial and shipping world at large in preventing a universal merger of all the great lines. Manifestly, he says, the power and resources of the Morgan merger can be adequately met only by a combination equal in financial strength and material equipment. He discusses the probable effect of the Morgan merger upon ship building in the following language:

"In the first place, it is bound to stimulate or, a better phrase would be, to compel a very marked advance in the type and character of British-built ships, and it must also, for reasons which I suggested early in this paper, beneficially affect American ship building, particularly in ship yards which represent a high state of modern development in plant, appliances, methods and organization. At this time American rivalry is a subject that has awakened the interest of the British more than at any other period in history. The reason why first-class American ship builders and their capacities should be considered by the merger is, that it must stimulate all parties to the development of vessels of greater speed, greater comfort and greater relative economy in fuel consumption and in other elements of operating cost. The sudden augmentation in the size of merchant ships has revolutionized all the methods of work and of manipulating the various materials of construction. Man-handling of the materials that enter into the make-up of the mammoth ships now in vogue is out of the question, and the introduction of powerful and newly designed machinery, together with increased yard space, is imperatively demanded to handle, fashion and work into place the elements of these immense structures. At this point in order to illustrate my meaning by a practical object lesson it becomes necessary for me to refer briefly to the establishment under my own control. Radical and sweeping changes have been made, amounting to a complete revolution of plant, methods and working organism. These changes are now complete; but they have been made so quietly and with so little self-advertisement that the importance and significance of the progress achieved has but just begun to be suspected, and is hardly yet realized by the trade at large, or even by those who should be interested in it above all others. The ship yard with its miles of railroad tracks of standard gauge, and with its locomotives, traveling locomotive cranes, and freight cars able to load and unload at every point necessary for receiving plates, etc., and for their transshipment to the localities where they are worked, may be viewed as one section of the great work in the new departure; the electric overhead traveling cranes and their appliances for giving the highest effectiveness to its power, plant, etc., as a second section; and as a third section, the great air-power plant with its riveting, drilling, chipping and caulking appliances, making Cramp's the foremost ship yard on the planet in its preparations for the new departure. Difficulties experienced by the builders of large ships abroad have compelled their appreciation of the gravity of the situation there, and they have just discovered the great strides that the Cramp company has made in providing for the future. The present result is that that company is in continuous correspondence with the foremost ship builders in Great Britain (some of whom have already visited the works), who have recently organized a committee of their most prominent men to visit the company's yard for the purpose of personally investigating the design, construction and operations of the new system."

### NOTES FROM NEWPORT NEWS.

Newport News, Va., July 2.—July 14 has been set as the date for the builder's trial of the new United States monitor Arkansas, which is building at the ship yard. Work is being rushed on the little defender in order that there will be no delay in sending her out for her preliminary trial. The Arkansas will probably only be out one day, leaving the yard early in the morning, going outside of the Virginia Capes and returning the same evening. The date of her commissioning will follow close on the official trial, which will take place shortly after the builder's trial.

The cruiser Vineta, flagship of the South Atlantic squadron of the German Imperial navy, is still at the ship yard undergoing a complete overhauling. She will be here several weeks longer.

The Pacific Mail steamship Korea is now well on her way to the Horn, en route to San Francisco, where she will arrive the latter part of this month or August 1. The Siberia, the Korea's sister ship, is rapidly nearing completion and will soon be ready for her builder's trial.

There was much rejoicing at the navy yard this week, when Admiral Cotton, commanding this naval station, posted a bulletin announcing that nearly a score of naval vessels will arrive at the yard within the next few days for repairs. This means that considerable more men must be taken on in various departments. Among the larger vessels coming are the Abarenda, Topeka, Leonidas, Nero, Dolphin, Caesar, monitor Terror and the naval towing steamer Standish. The captured Spanish gunboats Alvarado and Sandoval, the Dale, the Choctaw, the Gwynn, the Manley and the Gloucester are among the smaller vessels ordered here for repairs.

The United States cruiser Brooklyn arrived in Hampton Roads last week and after coaling sailed on Sunday for Annapolis, where she took aboard the remains of the late Sir Julian Pauncefote, ambassador of England to the United States. The Brooklyn sailed for England in command of Captain C. C. Todd and having aboard Rear Admiral Coghlan, who goes as the personal escort to the remains, representing this government.

The Holland submarine torpedo boat Adder arrived at Old Point several days ago en route from Washington to New York. The Adder, which is a sister of the Fulton, now undergoing repairs, has been at Washington demonstrating her worth to congressmen, government officials, naval officers and foreign attaches. She came to Old Point under her own steam and was towed to New York from Hampton Roads.

Washburn Bros., Thomaston, Me., will build a five-masted schooner, the largest ever constructed in Thomaston. Her dimensions will be: Length, 268 ft.; breadth, 48 ft.; depth, 20 ft.



## LIST OF STOCK HOLDERS IN THE STEEL CORPORATION.

An interesting fact brought out in the litigation to prevent the conversion of \$200,000,000 of preferred stock of the United States Steel Corporation into a like amount of bonds is the wide distribution of the capital stock, not alone in this country but in foreign countries. The vote to convert the stock into bonds represented 14,176 separate holdings of a par value of \$777,482,000 of stock. The names of all of the holders of stock voting for the proposition are now on file in the office of the secretary of state of New Jersey, but even the list of 14,176 does not begin to represent the individual owners of stock, many of whom voted through bankers, brokers or other agents. Following is a list of some of the largest holders of stock who voted in favor of the conversion and the number of shares of each class held by them as shown by the list on file:

	Preferred stock.	Common stock.		Preferred stock.	Common stock.
H. Amy & Co.....	27,049	4,059	P. J. Goodhart & Co.....	4,115	9,182
Appalo Iron & Steel Co..	28,028	28,028	Clement A. Griscom .....	4,176	2,501
Armstrong, Schirmer & Co.	3,872	8,559	W. S. Gurnee, Jr., & Co..	17,848	6,451
John Jacob Astor .....	5,120	5,225	Haile & Stieglitz .....	7,313	674
Frederick Ayer .....	4,542	.....	Hallgarten & Co. ....	19,211	14,566
Frederick Ayer, trustee..	20,000	.....	Charles W. Harkness....	9,276	720
J. S. Bache & Co.....	7,149	26,235	Harriman & Co.....	5,061	6,635
George F. Baker .....	23,625	50	J. F. Harris .....	5,190	.....
G. F. Battelle .....	5,055	9,555	Charles C. Harrison .....	3,032	2,050
S. W. M. Bishop .....	12,048	11,420	Marcellus Hartley .....	468	4,985
William W. Blackburn..	6,000	1,600	Charles Head & Co.....	2,610	5,196
Blake Bros. & Co.....	1,450	5,275	F. J. Hearne .....	6,503	625
S. W. Boocock .....	3,409	2,625	Laura F. Hearne .....	4,050	1,980
Boody, McLellan & Co..	9,690	17,788	H. B. Hollins & Co.....	10,032	28,861
Henry P. Bope.....	4,542	2,467	C. I. Hudson & Co.....	10,818	26,878
H. C. Braddon.....	5,255	13,700	W. A. Jennings .....	20,106	16,072
Lewis T. Brown.....	4,030	3,161	C. H. Jones .....	62,191	9,500
Seneca D. Brown & Co..	3,951	7,581	Ladenburg, Thalmann & Co.	41,218	81,488
Brown Bros. & Co.....	2,143	2,605	Lounsbery & Co.....	4,128	23,901
J. C. Bucken .....	15,950	.....	I. Gifforth Ladd.....	2,000	13,251
J. I. Burke .....	8,390	.....	Francis T. F. Lovejoy..	13,851	1,800
S. B. Chapin & Co.....	681	14,355	D. O. Mills.....	5,000	4,000
Clark, Dodge & Co.....	14,785	36,597	Moore & Schley.....	15,638	32,262
Daniel M. Clemson.....	19,862	7,805	J. Pierpont Morgan.....	7,131	12,500
Alfred Clifford .....	5,670	51	J. P. Morgan & Co.....	2,820	.....
Edmund C. Converse.....	10,061	.....	Thomas Morrison .....	21,000	4,000
James C. Converse.....	11,300	5,396	McIntyre & Marshall ..	24,512	21,910
Louise K. Converse.....	3,270	2,156	J. W. Nichols .....	28,455	9,286
William E. Corey .....	5,000	.....	George T. Oliver .....	17,100	18,100
T. B. Counselman.....	3,300	3,637	Henry W. Oliver .....	50,000	35,000
Bertram Cutler .....	123,975	25,365	David B. Oliver .....	9,150	9,000
Cuyler, Morgan & Co....	10,823	9,349	Alexander R. Peacock...	34,303	2,363
Henry Clews & Co.....	9,232	37,060	Henry Phipps .....	120,200	76,900
Darr, Luke & Moore.....	2,000	11,985	John S. Phipps.....	3,100	2,800
Day & Heaton.....	4,550	11,395	Lawrence C. Phipps....	25,098	25,047
De Haven & Townsend..	3,375	30,196	Post & Flagg .....	23,014	50,489
Thomas Dolan .....	15,000	4,612	K. J. Roberts .....	9,267	18,600
Dominick & Dominick..	4,638	12,102	D. G. Reid, as president	.....	.....
John A. Drake.....	8,225	.....	American Tin Plate Co.	17,000	3,750
Eames & Moore .....	2,010	13,080	Charles M. Schwab .....	50,001	5,000
J. T. Earl .....	60,000	.....	Joseph E. Schwab .....	6,187	5,835
John Eaton .....	10,125	.....	Schwartz, Dupee & Co..	14,000	.....
Ervin & Co.....	1,462	14,715	E. S. Sternam.....	10,000	.....
William Edenborn .....	33,450	83	Francis Lynde Stetson..	7,000	1,000
Marshall Field .....	7,499	.....	Strong, Sturgis & Co....	26,774	56,244
Harvey Fisk & Sons.....	2,040	3,280	W. H. Singer .....	43,442	39,906
John C. Fleming.....	6,787	5,000	Talbot J. Taylor & Co..	60,328	78,399
August Belmont & Co..	.....	1,150	E. E. Thomas.....	20,125	.....
H. C. Frick .....	100,000	50,001	Spencer, Trask & Co....	8,954	12,546
A. R. Fullarton .....	16,030	.....	Ullman Bros. ....	10,091	16,765
Fluennstock & Co.....	15,762	11,832	Van Emburgh & Atterbury	10,078	20,660
Flower & Co. ....	9,162	7,604	Webb & Prall .....	11,031	26,589
John W. Gates .....	16,000	100	Wolf Bros. & Co.....	9,989	23,527
James Gayley .....	12,300	.....	I. & S. Wormser.....	4,490	10,450
Robert Gibson .....	935	6,225	Marx, Bulteel, Mills & Co.	237,818	249,292
J. E. Gier .....	16,000	.....	Bankers in Holland.....	1,550	128,180
Goldman, Sachs & Co..	2,000	3,000			

Two things will strike the reader forcibly in pursuing this list. The first is that Mr. Bertram Cutler, who is absolutely unknown in the world of finance, should hold 123,975 shares of preferred and 25,365 shares of common stock. The second is that Mr. John D. Rockefeller should not be represented in the list at all. The only one of the Standard oil coterie represented is Mr. Charles W. Harkness with 9,276 shares of preferred and 720 shares of common. When one considers the princely figure at which the Lake Superior Consolidated mines and Duluth, Mesabi & Northern Ry., and the Bessemer Steamship Co. went into the corporation (all three of which were owned almost outright by Mr. Rockefeller) the absence of this gentleman's name becomes very conspicuous. The shining lights in the newspaper world at Pittsburgh immediately said that Mr. Bertram Cutler was Mr. Andrew Carnegie, notwithstanding the fact that it is generally known that Mr. Carnegie was paid exclusively in bonds for his holdings in the Carnegie company. However, as the first name of Mr. Carnegie's private secretary is Bertram that was quite sufficient to invest him with \$13,000,000 worth of steel securities. But as Mr. Bertram Cutler's daily occupation is that of a confidential clerk at No. 26 Broadway, New York, it is quite clear that he represents Mr. Rockefeller. Cutler's holdings, however, by no means represent the whole of the Rockefeller investment in steel. Mr. Rockefeller received far more than \$13,000,000 for his Lake Superior mines, railway and ships. The sum was nearer \$50,000,000 than \$13,000,000. The man who actually controls the Steel Corporation—Mr. J. Pierpont Morgan—shows only 7,131 shares of preferred stock and 12,500 shares of common in this legal inquiry. It is interesting to note that Mr. Frick's income from his Steel Corporation holdings is \$900,000 per year—a fact which ought to effectually put a stop to the fairy tales of the daily press that he is continually organizing competitive steel companies. Marx, Bulteel, Mills & Co., who are credited with 237,818 shares of preferred and 249,292 shares of common, are a firm of London bankers, through whom, in a large measure, the placing of the stock in Great Britain was effected. It is also worthy of note that while the holders of the underlying stock have pretty generally held to the preferred shares of the Steel Corporation, which they received in exchange, they seem to have disposed of a great deal of the common.

Secretary Moody of the navy department has already announced names for the six new ships of war authorized by the naval appropriation bill. The four largest ships, two battleships and two armored cruisers, will be named Louisiana, Connecticut, Tennessee and Washington. The two gunboats provided for in the act will be named Paducah and the Dubuque.

## SHIP BUILDING DURING THE PAST YEAR.

A little later on the Review will print extended extracts from the report of Mr. E. T. Chamberlain, United States commissioner of navigation, regarding ship building throughout the country during the year ended June 30. Only a brief preliminary summary of the report is as yet available. The commissioner reports that during the year ended June 30, 1902, 1,657 vessels of 473,081 gross tons were built in the United States and officially numbered, compared with 1,709 vessels of 489,616 tons for the previous fiscal year. The decrease compared with last year is in sailing vessels and canal boats, barges, etc. New steel steamers aggregate 275,479 tons, compared with 635,265 tons last year. Included in the total new tonnage are ninety-four vessels of over 1,000 tons, aggregating 315,062 tons, or two-thirds of the output. Of this large construction forty-one steel steamers of 158,631 tons were built on the great lakes. The outlook of completed steel steamers on the seaboard has been much below the indications of last July. The launching of nearly every large steamer has been delayed from three to eight months and some are still on the ways which by this time were to have been in operation. The delays have been partly due to the steel strike last summer, to the great demand for structural steel in all directions, to low freights and the lack of new ship building orders, which has left builders and owners without motive for haste. Last July 255,000 tons of ocean steel steamers were under construction or under contract, while at present only about 160,000 tons are under construction and no new large seaboard contracts are reported.

## LAKE COAL SITUATION AT BUFFALO.

A Buffalo correspondent who is well posted regarding coal shipments by lake from that point writes the Review as follows:

"The probability is that the coal miners' strike in the anthracite region will be at an end in a short time, and vessel owners who do not fully understand the conditions will naturally suppose that simultaneously with the end of the strike hard coal shipments will begin, which is true to a very limited extent. When the strike ends there will probably be not far from 150,000 tons of coal in stock here, which has been held since the strike commenced. This coal will be immediately released and a large part of it will be shipped by lake. There is also in all probability some hard coal held in Erie. But very little of the coal mined after work is resumed will find its way to the lakes for some weeks after the strike is settled. The east, which is the great market for hard coal and which depends entirely upon hard coal for fuel, will have to be supplied first, and there will be an urgent demand along the lines of railroads, which will have the next call, and last of all coal will be shipped by lake. After the strike is declared off it will take some time to resume operations and get coal above ground ready for shipment, so that under the most favorable circumstances there will not be much hard coal for shipment for some weeks after the strike is ended."

## AROUND THE GREAT LAKES.

Clamshell ore unloading machines at Conneaut recently unloaded 95 per cent. of the cargo of the steamer James Gayley, one of the modern ore freighters. It is said that four more machines of this kind will be erected at Conneaut as rapidly as possible.

Capt. James S. Moiles, for the past two years master of the barge Marcia of the Steel Corporation fleet, died at Detroit a few days ago of typhoid fever, after an illness of three weeks. He was fifty-four years of age, and had sailed the lakes since he was twelve years old.

A flash light will shortly take the place of the fixed light at Buffalo that is known on the charts as Buffalo light. This is the light that is situated on the southerly pier, about 350 ft. from the outer entrance to Buffalo harbor. The flashes in the new light will be at intervals of five seconds.

A contract for the construction of another ore dock for the Chicago & Northwestern company at Escanaba has been let. The dock will have a storage capacity of more than 50,000 tons of ore. About 350,000 cubic yards of earth will have to be dredged out to obtain a sufficient depth of water for large ore carriers.

At a meeting of members of the Western Elevating Association in Buffalo a few days ago it was voted to continue the association and to maintain during the next year the elevating charges now in effect. Reports presented to the association show that the receipts of grain for the present season to date fall 3,000,000 bushels below those of the same period last year.

The Portage Coal & Dock Co., just organized at Houghton, Mich., is a concern that will be controlled by Pickands, Mather & Co. of Cleveland. The capital of the company is \$100,000 and the capacity of a new dock to be built at once will be 80,000 tons. The president of the company is W. P. Murray, and the secretary and treasurer H. G. Dalton, both of Pickands, Mather & Co.

The new wooden steamer Edward P. Recor, owned by E. C. Recor and others of Marine City, is given A1\* rating and a valuation of \$22,000 in Inland Lloyds vessel register. The three turret steamers—Turret Cape, Turret Chief and Turret Court—owned by Wm. Peterson, Ltd., of Newcastle, England, and which are to engage in lake trade, are each valued at \$110,000 and given the usual rating for steel vessels, A1. These vessels are of 1881 gross tons each.

At a meeting of the executive committee of the Lake Carriers' Association in Cleveland Wednesday the following resolution was unanimously adopted: Resolved that the thanks of this association and of every vessel owner on the lakes is due, and in behalf of the Lake Carriers' Association we most cordially extend our thanks and congratulations to Major W. H. Bixby, engineer in charge, for the promptness, efficiency and zeal displayed by him, and the splendid success achieved in so quickly removing the obstruction to navigation at Sault Ste. Marie, caused by the wrecking of the bridge over the canal.

Keels for the large barge for the J. M. Guffey Petroleum Co. of Pittsburgh, Pa., and for the caisson for the government have been begun at the Bath Iron Works, Bath, Me. The oil barge will be 305 ft. long, 44 ft. wide and 23 ft. deep. The caisson will be 104 long, 22 ft. wide and 36 ft. deep.



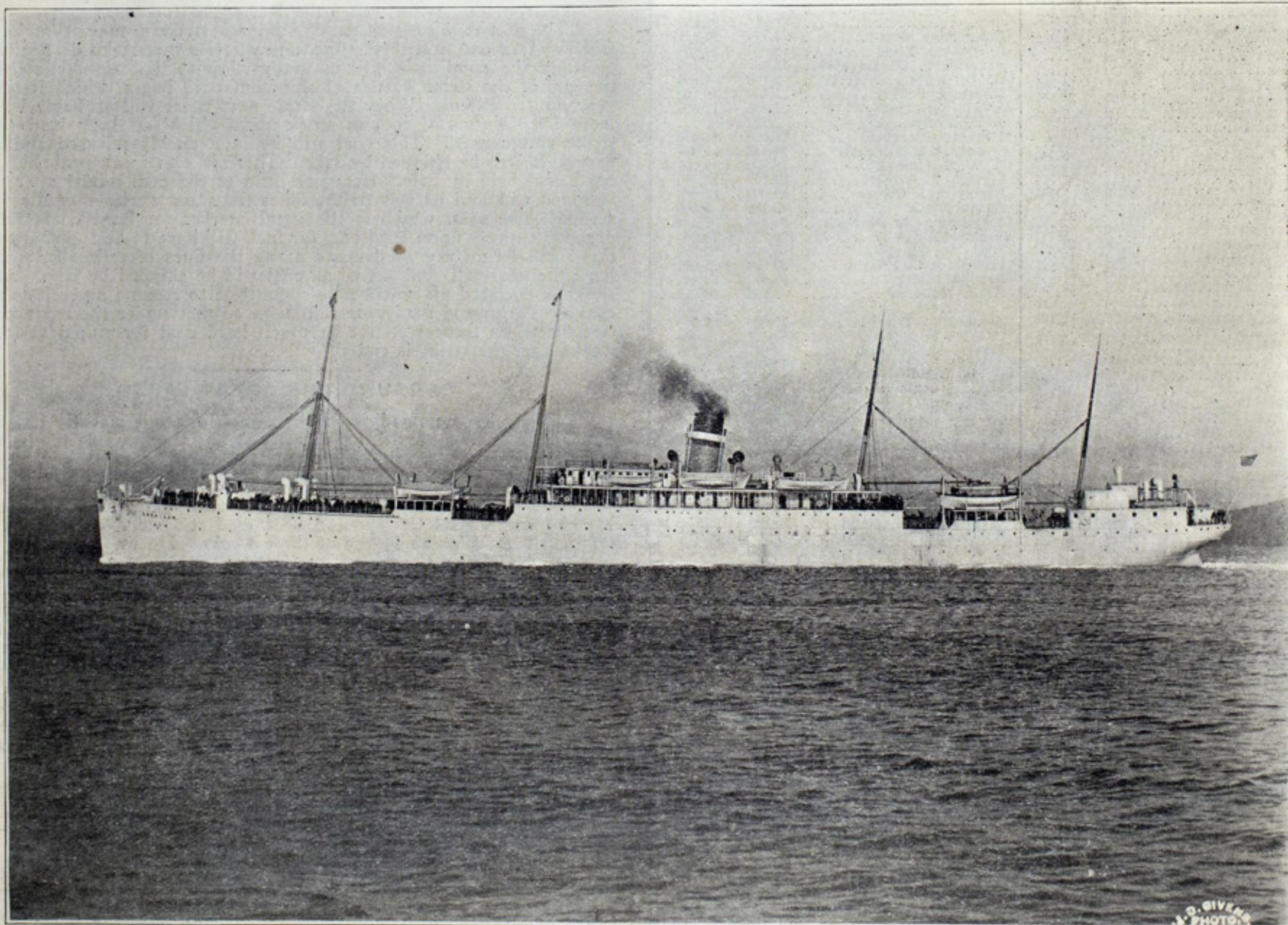
### THOUGHTFUL ADDRESS ON RECIPROCITY.

At the recent convention of the Southern Hardware Jobbers' Association, held at Atlantic City, Mr. John C. Schmidt, president of the Standard Chain Co. of Pittsburgh, delivered a thoughtful address on the subject of "Reciprocity" which is bound to occupy the attention of the general government. Mr. Schmidt is an advocate of the intelligent administration of the principle of reciprocity. In part he said:

"Reciprocity is an interesting study. It is not a new principle, although, as applied to our national affairs, it has comparatively recently become very prominent. The more one studies the question the deeper and more intricate does it seem, and the more difficult the problem that confronts the national government to determine what action should be taken that would benefit the country at large without injury to any industry. One hundred years ago Napoleon contemptuously referred to England as a 'nation of tradesmen,' but times have changed in the last century, and France now glories in the fact that she is a great manufacturing country and proud of her large trade, and is even now knocking at our doors requesting the enactment of a reciprocity treaty, which, however, is not likely to pass the senate. Webster defines reciprocity as 'mutual action and reaction,' and in the history of our government as early as 1793 Thomas Jefferson made a report to congress in Washington's administration, recommending reciprocity as better than retaliation. The national government, of course, requires revenue for its operation, and the tariff is so regulated as not only to produce the necessary revenue to carry the government, but to protect and encourage manufacturers. The United States has come to take a foremost rank among the manufacturing nations, and is each year extending its export

under the Dingley bill than under the Wilson bill for the very reason that part of this advance could be taken off without injury to any industry; and in consideration of this reduction in our tariff substantial concessions could be won from other countries. I am a protectionist, have always believed in this principle, but we must have reason in all things, and be reasonable with other nations. In trying to secure something from them we must, of course, expect to give something in return. Every one knows that it is a surplus of products which causes the lowering of prices, and their scarcity the advance. If we can build up a large export trade, we will not find a market for our surplus, but add to the stability of our prices by utilizing a demand which is not affected by local conditions in this country. Nor is the export trade affected as much by the seasons as is our home business. This is caused by the fact that their seasons are different from ours, and their purchases, on account of the long time in transit, must be made much earlier than those made by jobbers at home.

"Our first experience with reciprocity was the most natural one, with our near neighbor, Canada. This treaty went into effect on March 16, 1855, and lasted eleven years. It has been frequently pointed out that this was unsatisfactory, as during the life of this treaty our imports grew more rapidly than our exports. This, however, is hardly a fair comparison, as during the latter half of the life of the treaty we were torn up by the great civil war, and consequently did not have the commodities to exchange. This Canadian treaty differed very much from treaties as now drafted, because it provided for the free admission of a list of articles mainly limited to the products of the mine, the farm, the forest and the sea. There, however, were no stipulations limiting duties on manufac-



(Photograph by J. D. Givens, San Francisco, Cal.)

UNITED STATES TRANSPORT SHERIDAN.  
In the San Francisco-Manila Service.

trade. All goods exported bring to this country increased wealth, and the hope of our future greatness is based largely upon the anticipated increase in our export trade. To operate one portion of a factory exclusively upon export trade simply means a reduced cost for the entire product; and export trade should be looked upon by the nation at large with the same interest as the establishment of a new factory is locally regarded.

"The advocates of reciprocity are divided into two classes—the masked free trader, who seizes upon reciprocity as a club wherewith to beat down the present tariff, and the protectionist, who is willing to make concessions in our present tariff rates to such other nations as will do the same, thereby allowing each to export such articles which it is best able to furnish to the other. In 1890 Mr. Blaine, who was one of the foremost champions of reciprocity, stated that he objected to 'giving something for nothing,' and this is to my mind the keynote of reciprocity. This, any of us traders will clearly understand, is good business. The experiments, however, which were then made with reciprocity hardly had an opportunity to be fairly tested before the Wilson bill went into effect in 1894 and destroyed reciprocity by a voluntary reduction of the duties. The ordinary business principles which govern the administration of any large organization could and should be applied to commercial treaties. We now have a tariff which was purposely made higher on certain items

tures, the importance of which was not then realized. The exchange of products for twenty years, from 1850 to 1870, amounted to nearly \$1,000,000,000, and the excess of our exports was \$22,000,000, a nearly equal exchange. In the six years from 1864 to 1870 our Canadian imports exceeded our exports by \$60,000,000, and this unquestionably changed our policy. To my mind this Canadian treaty should never have been abrogated, but amended. Canada is a growing nation of intelligent, active business men, who are learning the lesson of protection by studying our experience and applying to her own commerce the principles we have tested and proved. The party in power in Canada today is a protective tariff party, and by this protection they are rapidly building up their manufactures; in many instances taking factories from the United States bodily, and not only our factories, but our people. Only last week I noticed in the public press, in glaring head lines, 'Americans Invade Canadian West,' and that 200,000 Americans will this year cross the Canadian border. This movement is urged by strong economic reasons—that is, the farmers of Iowa, Kansas, Indiana, Dakota, Minnesota and Nebraska can sell their land at from \$25 to \$60 per acre and buy land that will produce better and more abundant crops in the Canadian Northwest for \$15 per acre.

"This means that Canadian commerce will expand and with it a demand for manufactured product, and the American manufacturer must



either have concessions in the Canadian tariff or move to Canada with his factories. Canada has for a number of years past endeavored to enter into a reciprocity treaty with us, but in the meanwhile, by her protective policy, is building up her own industries. The original treaty of 1855 was based on improper lines. It was limited free trade. What is now demanded is mutual concessions from the existing tariff. Canada's regard for the mother country is so strong that she allows imports from England a special rebate of one-third of the Canadian tariff, and to still further build up the trade between Great Britain and its colonies the Hon. Joseph Chamberlain has called a convention of all colonial premiers, to be held in London immediately after the coronation this summer. If this prove successful the differential allowed England will be even greater than at present, and the American manufacturer will be still further handicapped in selling his products in the British colonies.

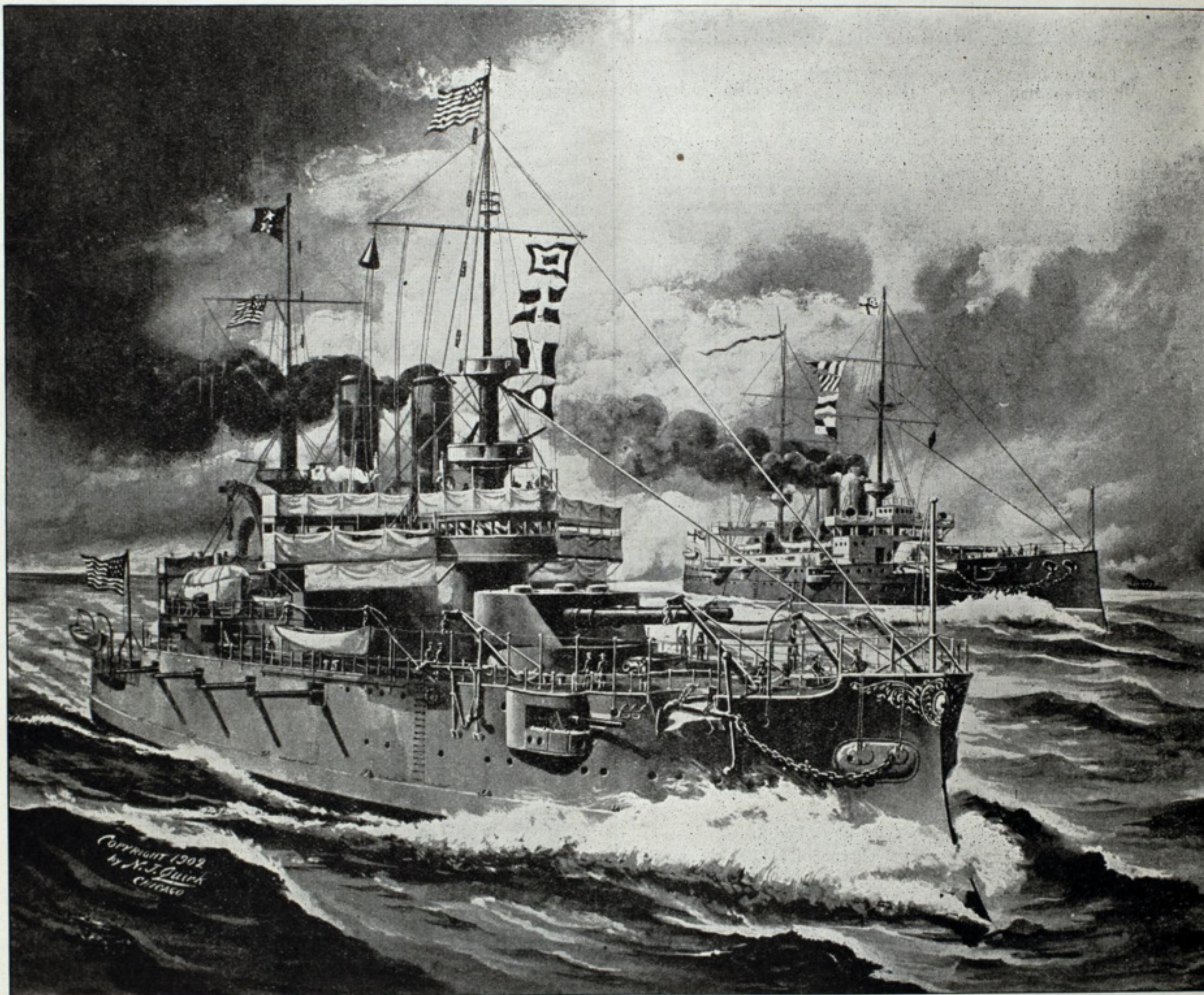
"We are no longer in our swaddling clothes, but as President Eliot of Harvard university said in his greeting to Prince Henry during his recent visit, 'we are a venerable nation compared with such a young government as Germany,' and the actions of our government with its protective tariff have been watched by other nations, and they have adopted the same policy to a very considerable extent. It is true that this, in part, has been caused by a spirit of retaliation, but even so, now that they

great service to the country. About thirty years ago we first established a commissioner of agriculture, Judge Watts of Pennsylvania being the first to hold this office, and under his careful administration so much valuable information was collected that it finally became a cabinet position, and a very important one. The same course of proceedings should be adopted in regard to the department of trade and commerce, and I hope we will soon see the day when the needs of this department will be recognized and a cabinet officer placed in commission having this important department in charge."

#### PESSIMISTIC VIEW OF SHIPPING.

The London Economist discusses the outlook of the competitive ocean freight trade with some pessimism. It reviews the unremunerative market of last year and cites various reports from trade sources regarding the present market. The trend is plainly declared to be towards a fall in prices. On these statements the Economist comments as follows:

"Such rates as are named cannot possibly pay a 'living wage' to the ship owner, especially if he acquired his vessel in the period between 1898 and 1901. Since the beginning of 1901 the cost of building has declined fully 30 per cent.—perhaps more near to 50 per cent., when the cost of



United States battleship Illinois and the British battleship London, now in the English channel. The London is the flagship of the Prince of Wales. The Illinois is the flagship of the American squadron at the European station, and is under command of Rear Admiral Crowninshield.

have retaliated, would it not be wise for us to come together and by cutting the inequalities in our tariff make concessions to other nations, not because they demand it, but because they will give us something of value in exchange therefor? In other words, any revision of the tariff should be made by its friends. There is no doubt in my mind that reciprocity would be of incalculable aid to American manufacturers if the principles were intelligently and properly applied. This, however, can only be done by men of wide experience as diplomats and thoroughly versed in all branches of trade.

"During the proceedings of the United Reciprocity Convention, held last fall in Washington, George C. Seabury of New York made what I consider a very valuable suggestion—that is, that a secretary of commerce and a tariff commission be appointed, composed of able men who have made a practical study of trade and commercial economics, to whom all questions affecting international trade and commerce should first be submitted; this department of commerce to be under the jurisdiction of a member of the cabinet, to be known as the secretary of commerce. Such a position would be a most important office, and one which would be of

financing and everything else is taken into account. On inquiry in shipping circles, we find a pretty prevalent feeling that if more vessels are not laid up, the situation is bound to become worse, and the losses upon charters larger than ever. Yet instead of more vessels being laid up, we hear of the ranks of the unemployed at the outports being gradually reduced, as boats are being got ready for sea again. The government have been paying penalties for cancelling charters right and left. These released vessels have now to seek employment elsewhere, and their owners, having handsome cancelling payments to the good, will be willing to take anything offering to keep their boats in commission until the clouds roll by. With the knowledge of this and the expectation of the early further release of the large number of liners still in South Africa, charterers will not increase their bids. Thus depressed as the freight markets have been for so long, the conclusion of peace is bound to increase the depression. Peace will restore confidence all round, and confidence will insure in time a commercial and industrial revival everywhere. With that revival must come a revival in the freight markets and an improvement in the condition of shipping; but that time is still some distance in the future."



### ARGUING THE BOND CONVERSION CASE.

The appeal from the order of Vice-Chancellor Emery of New Jersey, enjoining the United States Steel Corporation from carrying out its plan to convert \$200,000,000 of its preferred stock into 5 per cent. bonds and to issue an additional \$50,000,000 of the bonds to provide cash capital was argued last week before the court of errors and appeals at Trenton, N. J. The plaintiff in the case is Miriam Berger, who owns 116 shares of the preferred stock of the corporation. It is held by the plaintiff that the plan of conversion, which was approved by a vote of 99 83-100 per cent. of the stockholders at the meeting called for the purpose, was void because the statute passed by the New Jersey legislature on March 23, 1902, for the purpose of making legally possible the carrying out of the plan is unconstitutional. The plaintiff also objects to a contract entered into by the board of directors of the Steel Corporation with J. P. Morgan & Co., under which the bankers guaranteed to the Steel Corporation that \$100,000,000 face value of the new bonds would be taken, of which \$80,000,000 would represent the purchase of a like amount of preferred stock at par and \$20,000,000 represent payments made in cash at par.

Vice-Chancellor Emery, in a decision handed down on June 17, granted a temporary injunction. The vice-chancellor held, in substance, that the proposed plan called for a preferential distribution of capital, since only those who agreed to take the bonds would share in the distribution and that in so far as the act of March 23, 1902, impaired the vested property rights of the holders of preferred stock, that act was unconstitutional.

The United States Steel Corporation was represented by William D. Guthrie and Victor Morawetz of New York and R. V. Lindabury of Jersey City. Owing to a recent ruling of the New Jersey courts that New York lawyers may not be heard in the highest courts of that state, Mr. Lindabury made the argument. It was conceded by both sides that the only question involved was a question of law, namely, the constitutionality of the act of March 23, 1902. The appellants, however, went over the whole history of the plan and much that has not been known hitherto about it was made public in the course of Mr. Lindabury's argument. After outlining the appellants' position the argument took up in order the provisions of the act of 1896, amended by the act of March 23, 1902, for the purchase and retirement of preferred stock; the purport and effect of the act of 1902; the constitutionality of that act and the agreement with J. P. Morgan & Co. In outlining the position of the Steel Corporation it was pointed out that since the preferred stock of the corporation is entitled in perpetuity to cumulative dividends at the rate of 7 per cent., constituting practically a fixed charge, the corporation, in retiring this stock by means of the issue of an equal amount of 5 per cent. bonds, would save \$4,000,000 a year, a saving which would accrue to the benefit of the remaining preferred and common stock. The plan adopted, it was argued, was substantially a purchase of the specified number of preferred shares and the payment therefor in and by bonds.

This plan having been decided upon, it had to be determined from whom the purchases of stock should be made. "Obviously," says the brief of Messrs. Francis Lynde Stetson, Guthrie and Morawetz, "a purchase of \$200,000,000 par value of stock from any banking firm or syndicate or designated stockholders might invite criticism. If the preferred stock had been purchased, for example, at par from designated stockholders and there had proved a depreciation in the market to, say, 90 per cent. of par, it cannot for a moment be doubted that some shareholder would have challenged the propriety, if not the integrity, of the transaction. It would have been argued that the market value of the stock was 90 or less, that the payment of par showed a loss of 10 per cent., \$20,000,000, and that this sum had been wasted or squandered, and it would have been charged by the complainant or some similar stockholder that the plan had been a scheme to enable favored directors or stockholders to sell their preferred shares at a loss of over \$20,000,000 to the Steel Corporation. It was, therefore, resolved that the privilege of selling to the corporation the whole amount of the shares required to effect the proposed decrease of the company's preferred capital stock should be pro rata to all the holders of that class in proportion to their holdings. It was also determined that it would be advisable to provide additional cash capital, and so it was decided to make one issue of \$250,000,000 of 5 per cent. bonds, so as to cover and include the two purposes, the reduction of the preferred stock and the additional capital requirements."

### SOME OF THE BENEFITS OF THE BOND ISSUE.

The argument proceeds: "The annual charge of \$14,000,000, representing the 7 per cent. cumulative dividend on the \$200,000,000 of preferred stock so retired, would provide an amount sufficient to cover the full 5 per cent. interest on the entire issue of \$250,000,000 face value of bonds, amounting to \$12,500,000, besides providing a sinking fund of \$1,010,000 per year which, invested at 4 per cent. would in sixty years pay off the principal of the bonds at maturity and, in addition, leave a surplus of \$490,000 per annum applicable to dividends."

In regard to the contract with J. P. Morgan & Co., it was said: "As compensation for the obligation thus assumed and the risk it involved by this guaranty, the Steel Corporation agreed to pay to the bankers a commission of 4 per cent. upon all of the bonds issued; that is, upon all of the bonds taken by the bankers under their guaranty or by the stockholders under their option or right to subscribe. In other words, the syndicate undertook to sell to the corporation \$80,000,000 of preferred stock and to provide \$20,000,000 in cash for \$100,000,000 of the 5 per cent. bonds at par, and in consideration of this undertaking the syndicate was to receive in any event a commission of 4 per cent. on the \$100,000,000 and contingently a commission of 4 per cent. on any additional amount of bonds that might be taken by the stockholders. Therefore in order to assure this saving of a dividend charge of 2 per cent. in perpetuity, the directors of the Steel Corporation agreed to pay an amount equal to the saving effected in two years. If the preferred stockholders of the Steel Corporation declined to retire their stock the bankers would be compelled to purchase \$80,000,000 of preferred stock, which would undoubtedly greatly raise the market value thereof, and to cover this risk \$80,000,000 of preferred stock was purchased and deposited by the syndicate, and at that time the market value of the preferred stock was 94 per cent. of par. The papers further show that the details of the proposed plan for the purchase and retirement of the preferred stock and the issue of 5 per cent. bonds, together with the contract made with J. P. Morgan & Co., were fully communicated to all the stockholders of the Steel Corporation, and that

a special meeting was duly called for the purpose of considering the same. The result of that meeting was the attendance in person or by proxy of over 73 per cent. of the outstanding preferred stock and over 78 per cent. of the outstanding common stock of the corporation, and the vote of more than 99 83-100 per cent. of the stockholders present in person or by proxy in favor and approval of the plan as well as the contract with J. P. Morgan & Co., and only about seventeen one-hundredths of 1 per cent. of the stock in opposition, including the complainant in this suit, who owns 116 shares of preferred stock, or about one nine-hundredth of 1 per cent. of the capital stock of the Steel Corporation. The contract was approved by the holders of a majority of all of the outstanding stock of the corporation, exclusive of the registered holdings of the syndicate and of J. P. Morgan & Co."

It was further argued that if the directors had sold \$100,000,000 of these new bonds at 96 or at 92, and thus secured the proceeds with which to purchase stock for retirement, "it is inconceivable that any court of equity would have set the transaction aside without the slightest proof of fraud or waste or oppression, when it had been approved by so large a majority of the stockholders. There is no rule in New Jersey which prohibits a corporation from disposing of its notes or bonds for less than their face value."

"The agreement with J. P. Morgan & Co.," it was argued for the appellants, "absolutely bound the bankers to take the bonds to the extent of \$100,000,000, and to pay for them in the manner specified, namely, in preferred stock at par and in cash, and this obviously involved an enormous risk dependent upon the fluctuations of the money market. The directors, anticipating that the stockholders might decide that they needed no bankers and that they themselves would sell their own stock, and thus render a guaranty syndicate unnecessary, resolved that the contract was not finally to become or to be operative until after approval thereof by the stockholders in special meeting assembled. It was, therefore, within the power of the stockholders at the special meeting, if they had seen fit, to have approved the plan effecting a reduction of the preferred stock by means of bonds or out of the proceeds of bonds, and to have disapproved the contract with J. P. Morgan & Co., because they, the preferred stockholders, elected to reserve the right to sell their stock proportionately to the corporation. They had the power to defeat the payment of the 4 per cent. commission to J. P. Morgan & Co. and the syndicate, had they considered that such a step was for their best interests. The choice of plans was left to them."

### THE NEW JERSEY LAW IN THE CASE.

In discussing the provisions of the act of 1896, counsel said: "It would not be a fair or reasonable construction of the statute to hold that it authorized a purchase of stock only provided such purchase be made ratably from all the stockholders. The statute does not say that the stock shall be purchased equally or ratably from the stockholders; on the contrary, it expressly authorizes the purchase of 'certain' shares for retirement. As above pointed out, the statute makes ample provision for a compulsory ratable decrease of the stock of every stockholder by other methods whenever the holders of the requisite amount of stock shall vote for the decrease as prescribed by law. To hold that the grant of authority to purchase certain shares for retirement is subject to the condition that the requisite amount of shares shall be purchased ratably from all the stockholders would render this provision practically meaningless, because any stockholder, by refusing to sell his ratable amount of stock, would be enabled to block and defeat any action."

Getting down to the constitutionality of the act of 1902, counsel for the Steel Corporation argued that the complainant supported his contention that the act was unconstitutional in two cases. He continued:

"The principle underlying these cases is that an act violates the constitutional provision when it is intended by the legislator to apply only to one corporation, and never to be applicable to any other, and when it is clearly evident that the attempt at classification was arbitrary or illusory and for the sole purpose of covering a particular case. The mere fact that the United States Steel Corporation may have approved or adopted this legislation cannot make it violative of the constitutional provision unless it was clearly the intention of the legislature, to be gathered from the language it used, that the act should only apply to that one corporation. It may be doubted whether the act of 1902 confers any corporate powers within the meaning of this constitutional inhibition. The essence of its provisions is to regulate and limit the exercise of an existing power. If the power to retire preferred stock at par and to issue bonds or deferred notes therefor previously existed, then the new act but regulates the means or method of the exercise of that pre-existing right. The act applies to every corporation whose conditions meet the requirements of the act. It is unquestionably general in that sense and broad enough to reach many corporations now in existence, as well as to cover every corporation in the future which may develop a condition of assets and earnings such as will enable it to act. But if this were not so, and there were only one corporation now in existence which could avail of the act of 1902, namely, the United States Steel Corporation, the statute would nevertheless not be 'a special act conferring corporate powers' within the settled rule in this state."

Coke oven blowers in the Buffalo plant of the Lackawanna Iron & Steel Co. are to be operated by direct connected electric motors. Ten induction motors of 75 H. P. each have recently been purchased by the Lackawanna company for this purpose from the Westinghouse Electric & Mfg. Co. Four induction motors of 100 H.P. each will be used for operating the gas cleaning plant and the machine shop will likewise be driven by induction motors. This company has lately bought in all 151 type C Westinghouse induction motors of from 1 to 100 H. P. each.

Mr. Arthur Masters, member of the Society of Naval Architects and Marine Engineers, has opened an office at No. 29 Broadway, New York, and will engage in naval architecture and marine engineering, yacht and steamship brokerage, ship and engine surveying. He announces that he is prepared to furnish designs and estimates for the construction of all descriptions of vessels, engines and boilers.

It is not expected that the revenue cutter *Tuscarora*, building at the works of the Wm. R. Trigg Co., Richmond, Va., for lake service will reach her station at Milwaukee until the advent of the fall season.

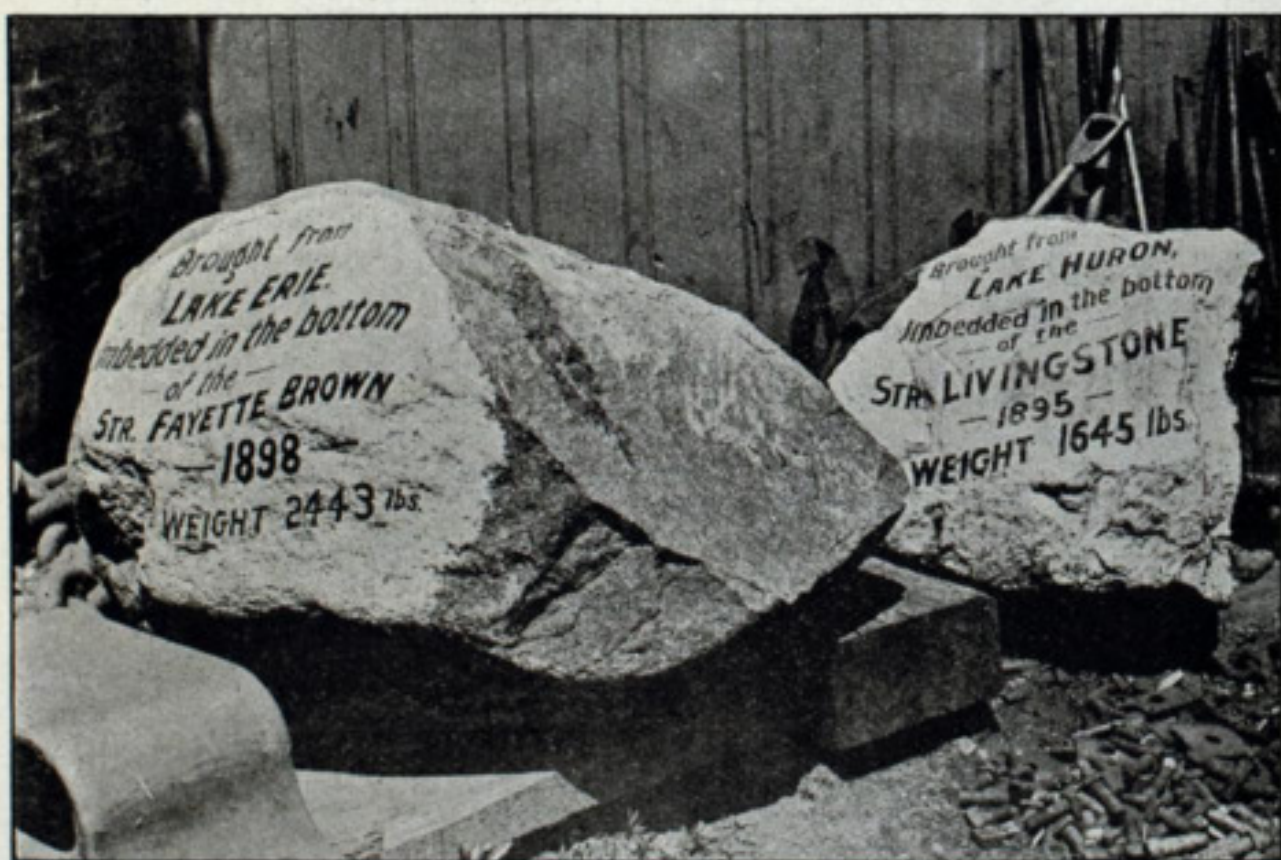


### MERCHANT MARINE AS A CAREER.

Mr. Clement Acton Griscom, Jr., manager of the American line, contributes a very interesting article to the July number of Success. The subject is the "American Merchant Marine as a Career," and Mr. Griscom, of course, addresses himself mainly to young Americans but he also refers briefly to the question of ship subsidy. He regrets the failure of the government to render assistance to foreign trade shipping but still thinks that all signs of the times point to a rapid upbuilding of our merchant marine.

"It cannot be believed," Mr. Griscom says, "that a nation that is taking its place as the greatest producing and greatest trading nation in the world is long to allow its products to be carried in foreign bottoms. Unless the rapid commercial development of this country is to be checked by a miracle, we are entering upon a great ship building era, and the time has come to direct young Americans to seafaring careers. It is not my intention to take up the discussion of our shipping laws. I believe that prejudice will not blind the nation's lawmakers much longer to the needs of our merchant marine. But I want to recall an incident in recent history. Nine years ago, under a special act of congress, two English-built ships were admitted to American register. It was believed that this marked the restoration of the United States flag to the seas. When the late Benjamin Harrison raised the American flag over the New York on a Washington's birthday during his term as president, he said: 'I have felt, both as a citizen and as president, the mortification that every American must feel who examines into the standing of the United States in the merchant marine of the world. I believe that we have reached an epoch in our development when we may successfully recover our fair share of the carrying trade of the world.' We lift the flag today over one ship—a magnificent specimen of naval architecture—one of the best afloat on any sea. That event is interesting in itself, but its interest to me is in the fact that the ship is the type and precursor of many others that are to float this flag."

"What have we done since then? As Senator Depew said in congress, in a recent debate, in ten years we have invested two billions of new capital in American railways, three and one-third billions in American manufactures, but nothing in American shipping! Why? For the reason, as Senator Depew stated, that there could not be brought forward any figures to show that the investor could get his money back, much less any return for his money. We have just built, in an American yard, the passenger steamship Kroonland, the largest express steamer ever built in this country. If we should place her under the British flag, we could save \$30,000 a year in wages. Between the English Campania and the American St. Paul, there is a difference of \$3,000 a month in wages in favor of the foreign ship. American registry costs our ships \$200,000 a year. We have carried this burden through a decade with the hope that the government would encourage the American merchant marine. Without this government backing we cannot expect to compete with foreign ships, and we are now making ready to put the American liners under the British flag, should congress refuse to act. Our navigation laws, as every seafaring man knows, are ridiculous. We sail the 1200-ton steamship Kroonland under the same laws that governed the 600-ton sailing vessels of the eighteenth century. For more than a century our navigation laws have been unchanged, and they are now so antiquated that no one has the courage to take up the task of brushing the cobwebs from them. But, with the upbuilding of our merchant marine, wise legislation must follow."



The boulders illustrated in this photograph are now at the ship yard of the Detroit Ship Building Co. They were picked up in stranding and found embedded in the bottom of the steamers when docked for repairs.

### IRON PRODUCTION IN NEW SOUTH WALES.

Orlando H. Baker, consul at Sydney, New South Wales, contributes to the state department the following article upon the manufacture of iron in New South Wales:

"The revival of the discussion as to the practicability of making iron at Sydney from native ores, in sufficient quantities and variety to meet the demands of the market, has led me to investigate the attempts made in the past to develop the iron industry in New South Wales. The first attempt to smelt iron ores in this state, of which I find a record, was at Mittagong, 77 miles south of Sydney, about 1850. The works shut down in 1855, owing to the operations not being profitable, and remained idle, with intervals of activity, until 1865, when the foundry produced a number of cylinders for a bridge, and girders for houses in Sydney, cast direct from the blast furnace; but the works were again shut down, because the cost of production exceeded the value of the product. The pig iron pro-

duced cost at one time \$24 per ton. The property changed hands several times, and various efforts were made to produce iron, but the works were finally abandoned, owing largely to the lack of good and cheap fuel. A seam of coal 8 ft. 11 in. thick was found at a depth of 642 feet. The Eskbank Iron Works are near Lithgow, ninety-six miles west of Sydney, and were first charged in 1877. The blast furnace was of the best class, and it produced 100 tons of pig iron per week. Coal and 'clay band' ore were adjacent to the furnace. The brown hematite was brought by rail seventy miles; red siliceous hematite and limestone, fourteen miles. The company had also a foundry and all necessary appliances for converting pig iron into bar iron.

"Pig iron has not been produced by these works since 1882, but the rolling mills have been operated continuously, making bar iron from scrap. I am informed that no other experiments in iron making have been made in all Australia. There are twelve varieties of ore enumerated as occurring in this state, in widely separated districts. The government recently appointed Mr. Jacquet to carefully examine all the principal deposits, in order to determine the feasibility of entering upon a new smelting experiment. So far as examined, the Mittagong field appears to contain less than 1,000,000 tons. There are 1,000,000 tons about Picton and 1,500,000 tons about Goulburn. Mr. Jacquet, however, has reported that other deposits within reasonable distance of Lithgow show that there is sufficient material available to justify the establishment of the iron industry in this state. Probably the most extensive deposit of iron ore in New South Wales is near Cadia, 192 miles west of Sydney. Mr. Jacquet estimates the deposit near Orange to be about 39,000,000 tons, and believes that it could be mined and transported ninety-five miles to Lithgow, where the coal is found, at 10s. (\$2.43) per ton; the cost of smelting would be £2 10s. (\$12.16) per ton of pig iron, making a total cost of £3 (\$14.59). The ore is thought to be suitable for the manufacture of Bessemer steel. There are many foundries in New South Wales, but the supply of pig iron is greater than the demand. The price ranges from 72s. to 90s. (\$16.54 to \$21.89) per ton. Labor is perhaps the largest item in the cost of iron, and there is a strong tendency at present in this colony to fix the price of labor artificially. It is now proposed that the government shall undertake the development of the iron resources of New South Wales, with the hope of success under somewhat altered conditions."

### CAPT. W. W. BROWN.

Accompanying this article is a portrait of a young man who has made great strides in this narrow world during the past three or four years. His career simply shows that the door of opportunity is never closed to those who have the courage and ability to enter its portals. Capital is



always seeking the man who is able to be its master. A few years ago, not more than six or eight, Capt. W. W. Brown, who had been master of a vessel, came ashore and took charge of the old Cleveland dry dock. Hitherto his experience had been confined to sailing. But he was so closely in touch with the affairs of owners and builders ashore that he had hardly reached the point of commanding the large type of freighters when his ability was generally recognized in vessel circles. In the dry dock business his fitness for large enterprises was developed. He had studied lake commerce very thoroughly and became convinced that its future was a growing one. When the dry dock was absorbed by the consolidation of lake ship yards he started out on his own account.

He has since succeeded in interesting capitalists of Syracuse (N. Y.) and other places in several large steamship enterprises. Within the past year he has placed orders with the American Ship Building Co. for eleven steel freight steamers that will be worth in the aggregate nearly \$3,000,000. Five of these steamers are in commission and orders for the other six were placed within the past ten days.

### SHIP BUILDING AT PHILADELPHIA AND VICINITY.

Philadelphia, June 28.—The sheathed protected cruiser Denver, which was launched from the Neafie & Levy yards a week ago and christened by Miss Roberta M. Wright, daughter of Mayor Wright of Denver, Col., will be the first vessel built on the Delaware to be equipped with the Marconi signal system. The Denver will have two steel masts, the wireless signaling apparatus being strung on the foremast. All the Denver's machinery was on board when she slipped into the water. With her length of 292 ft. and draught of 15 ft. 9 in. she has been christened "the baby" by workmen in the yard. The Denver is intended for service in the Philippines.

The finishing touches are being placed on the new Maine at the Cramp ship yard in preparation for her trial trip, which is scheduled to take place within the next week.

Little time is being lost at the Neafie & Levy plant. In the place vacated by the Denver they are already laying the keel for the armored cruiser St. Louis for the United States government. She is to be 100 ft. longer than the Denver and will be completed in three years.

The torpedo boat destroyers Stringham and Hopkins, built by the Harlan & Hollingsworth Co., are in Chesapeake bay for their trial trips, which will be run in close succession.

Within the month the Neafie & Levy Co. have secured contracts to build nine new tugs. Three of these are intended for a New York firm, four for the Standard Oil Co., one for Gulf Port, Miss., and one for the Central Railroad of New Jersey.

The Middlesex, a side-wheel passenger steamer built for the Weems Steamboat Co. of Baltimore, will be launched from Neafie & Levy's on Thursday. Miss Forbes of Baltimore is to be sponsor. The Middlesex is 207 ft. long, 62 ft. wide over the guards and 13 ft. deep. She is fitted with a diagonal compound engine with feathering wheels. The main saloon is finished in quartered oak. There are forty-two staterooms. The lower deck is fitted with pipe berths for second-class passengers. Freight only will be carried on the main deck. The Middlesex will ply between Baltimore and points on the Rappahannock.



## HISTORY OF THE PANAMA CANAL TO DATE.

When President Roosevelt affixes his signature to the bill passed by congress providing for the construction of a canal across the Isthmus of Panama "the dream of the navigator," as the building of a canal to connect the Atlantic with the Pacific ocean has been called, will have gained such substance that a comparatively few years will suffice to bring it to a reality. The thought of uniting the two oceans by means of a canal across the isthmus sprang up the moment the conviction was reached that the passage which, from the days of Columbus, was thought to exist toward the Southern sea had no existence in fact. The first survey with a view to determining the feasibility of making a connection between the two oceans, however, was not carried out until the year 1581. In that year, in obedience to instructions, Capt. Antonio Pereira, governor of Costa Rica, organized an expedition and explored the route by way of the San Juan river, the lake, and the rivers emptying into Gulf Nicoya, Costa Rica. Thirty-nine years later Diego de Mercado submitted to King Philip of Spain an elaborate report in favor of the construction of a canal over that route, which is known as the Nicaragua route. The Panama canal project was conceived later, and other projects were advanced later, and subsequently, also, other projects were advanced for connecting the oceans, one of which was the bold conception of James B. Eads, an American engineer, to construct at Tehuantepec a railroad which would be able to carry the largest ships from ocean to ocean. The scheme of connecting the two oceans has possessed a fascination for men of science and an intense interest for men of commerce ever since it was proposed. The literature on the subject is vast. On no question which ever has been before the congress of the United States has so much been written and spoken as that of the Isthmian canal. A number of surveys of the Panama and Nicaragua routes were made during the past half century, but it may be said that not until 1879 was the first positive step taken toward the realization of the project on which so much thought had been expended. In May of that year an international congress was convened in Paris by M. Ferdinand de Lesseps to discuss the plan of cutting a canal through the Isthmus of Panama. The congress adopted a plan which had been prepared previously by M. de Lesseps, and immediately following that action the Panama Canal Co. was formed. The company secured from Lieut. Lucien Napoleon Bonaparte Wyse of the French navy the concession which he had obtained from the United States of Colombia.

After the concession had been secured by the company, a commission, known as the De Lesseps engineering commission, was sent to Panama to make surveys and prepare estimates of cost. The commission estimated that a canal could be made for 843,000,000 francs. De Lesseps reduced these figures to 600,000,000 francs, or \$120,000,000, and announced that a canal a niveau, or tide-level canal, could be completed for that sum. So confident was he of the accuracy of his calculations that he invited men of prominence to attend the opening of the canal, which he set for 1888.

### FIRST SURVEY AT PANAMA WAS MADE IN 1881.

On Feb. 21, 1881, the first detachment of canal employes arrived at Colon. Surveys were made, and the building of camps, hospitals and other necessary buildings followed. In 1882 the Panama Canal Co. purchased the Panama railway. Interest charges accumulated between 1882 and 1888, while nothing like the progress on the canal which had been anticipated had been made. In the autumn of 1888 further borrowing became impossible, and then came a crash which shook the financial world. On Jan. 1, 1889, the company was forced into liquidation. This event created a ferment throughout France, no less than 800,000 French shareholders having been induced to invest in the stock of the company, largely through the appeals which had been made to their patriotism. A receiver was appointed by the court of the Seine with unlimited powers. In 1890 the receiver sent a commission of French and other engineers to Panama to report on the actual condition of the work. The report was discouraging. Not more than a fifth of the proposed work had been done; a valuable plant, estimated at \$30,000,000, was rusting away and useless; the tide level at Colon was filling in, and the harbor was shallowing, owing to the cut. In 1891 the government of Colombia granted to the Panama Canal Co. an extension of ten years from 1893 in which to finish the contract, provided operations be resumed before February, 1893. In November, 1892, a member of the French chamber of deputies, M. Delahaye, created a profound sensation in Paris by declaring on the floor of the chamber that the Panama Canal Co. had obtained exceptional privileges, which it had used for the purpose of defrauding investors, by the bribery of no fewer than 100 deputies. The demand for an investigation of the charges was of such force and insistence as to be irresistible, and the ministry decided to submit the whole question to a committee. Following this decision, Baron Reinach, a banker accused of being the instrument or agent of much of the corruption of the company, died suddenly, and it was alleged that he had poisoned himself. Amid a popular clamor, such as Paris had not known for many years, the investigation was carried on, and the disclosures before the investigating committee indicated that the operations of the canal company had been slimed with fraud. It was shown that the Panama company had bribed deputies and journalists on an extensive scale in order to cover up its shortcomings and leave the way open for further imposition on its trusting shareholders and creditors.

In February, 1893, M. de Lesseps, his son Charles, and some of their colleagues were sentenced to various terms of imprisonment for fraud and bribery. At the time the blow fell M. de Lesseps had passed his eightieth year. A few years before he had married a young woman, and all France had extended congratulations to him upon the birth of a child to his attractive spouse. Bitter as was the feeling of the French public toward those who were responsible for their loss of money, much sympathy was manifested toward the man who had been the presiding genius of the great enterprise. That he had been knowingly a party to the great fraud which had wrecked the hopes and fortunes of so many worthy persons in France the public was loath to credit. The sympathy for him took such form that he was not imprisoned. But the great engineer, who had reaped so much glory through the construction of the Suez canal, was unable to withstand the blow which the Panama exposures gave him. He died in November of the year following.

At the end of 1893 the only prominent person left in prison as the result of the Panama prosecution, was M. Baihut, formerly minister of public works. In 1894 a prominent French engineer proffered a scheme

by which he claimed the work could be completed in four years at an additional cost of \$110,000,000. A new company was formed, and 300,000 shares were issued. Work on the canal was resumed under French auspices. Early in 1895 a strike occurred among the laborers on the canal, and the methods of the new company were criticised severely by the stockholders. Another scandal such as had attended the operations of the original company was feared, but developments showed that the suspicions were unwarranted. Nevertheless, the confidence of the French public in the ultimate success of the enterprise had been shaken to an extent as to make it manifest that the completion of the canal under French auspices was no longer a possibility, as additional financial support would not be forthcoming. That being the situation, those who were bound up in the enterprise turned toward America for relief. The United States, up to that time, had concerned itself, as far as the building of a canal was considered, solely with the Nicaragua route. The first survey for a canal at Nicaragua under American auspices was made in 1852 by Col. A. W. Childs. The project as outlined by him has been the basis for all subsequent locations. A second survey was made in 1872 by a party under the charge of Commander E. P. Lull of the United States navy.

Eleven years later another survey was made by A. G. Menocal, a civil engineer, also of the United States navy. In 1889 the Maritime Canal Co. was organized to construct the Nicaragua canal on the lines of the Menocal project. As there was, for a decade following, considerable enthusiasm over the Nicaragua canal scheme in this country, the prospects of the Panama company enlisting American capital, and especially governmental aid, were anything but promising. Nevertheless, an auxiliary American company was organized. In the investigation of the French company's affairs which was made by the new American company, it was ascertained that of the \$156,400,000 expended by the original company only \$88,600,000 had been expended legitimately upon the excavation and construction, the rest having gone in bribery and corruption. The second French company was started with a capital of 65,000,000 f., about one-half of which was expended cautiously on construction in four years. The second French company had abandoned the original plan of constructing a tidewater canal. Its plan contemplated the construction of a canal with locks.

### THE NICARAGUA ROUTE HAS DECLINED STEADILY IN FAVOR.

The history of the isthmian canal project during the past five years shows that while the sentiment in favor of the construction of a canal has grown steadily, faith in the Nicaragua route as the most practicable has suffered a steady decline. This decline has been due, more than anything else, perhaps, to the uncertainty of the cost of carrying out the project. The first estimate of the Maritime company was \$67,000,000. After doing more or less work on the canal the Maritime company ceased operations in 1893 for lack of funds. In 1895 congress appointed the Ludlow commission to examine and report upon the Maritime company's project. This commission placed the cost of the canal's completion at \$133,472,893. The Walker commission, appointed subsequently, increased the estimate to \$140,000,000.

Up to the outbreak of the war with Spain the project of constructing an isthmian canal, while acquiesced in by the general public in the United States, has received ardent advocacy only in quarters where a special study of the subject had been made. But at the commencement of that conflict the people of the United States received an impressive object lesson on the need of a canal. That lesson was the historic trip of the battleship Oregon. With the declaration of hostilities American attention was absorbed by the possibility of the Spanish fleet under Admiral Cervera making a sudden attack upon some one of the important cities of the Atlantic coast. At that time the Oregon, a newly constructed battleship, was on the Pacific station. It was considered desirable to have the ship added to the strength of the Atlantic fleet. Orders were sent to her commander, Capt. Clark, to bring her around Cape Horn, using all speed possible. The American people watched with anxiety the famous voyage. It furnished an argument for the construction of an isthmian canal more effective than a century of discussion.

But coincident with the making up of the American mind that a canal must be built there came the conflict of opinion as to the choice of routes. Those who were interested in the Panama enterprise were quick to see the opportunity opened to them. When the commission that was appointed by President McKinley, in 1899, to examine the American isthmus at every available point in order to determine the most practicable and feasible route for a ship canal, went to Paris to examine the plans of the Panama company, the company, realizing the improbability of its being able to raise sufficient funds in France to go on with the enterprise to a successful conclusion, decided to take its chances in competition with the Nicaragua project before the American congress. At a meeting of the directors it was decided to transfer all of the property of the company, its rights and powers, together with those of the American auxiliary company, to a new American company. That company was organized under the laws of the State of New Jersey, with the title of the Panama Canal Co. of America. The capital was fixed at \$30,000,000, and the company was authorized to increase the amount if necessary. The arrangement which it made with the French company, in taking over its rights, was to pay the shareholders of that company partly in money, but mainly in shares of the American company. The French company retains only an equity in the shape of a lien on a specified percentage of the profits remaining after the payment of all operating expenses and fixed charges and a dividend to the stockholders of the new company.

An international commission of French, German, Russian, English, and American engineers, consulted by the French company in drawing up its plans, estimated the cost of completing the Panama canal at \$102,000,000, if the two locks be made of a certain width, and \$125,000,000 if the locks be wider. The extended concession from the Colombian government runs until Oct. 31, 1910, a bonus of 3,000,000 f. having been paid to the government to secure the extension.

After the American company was organized and the proposition for a transfer was brought definitely before the French directors, so much opposition was developed to the surrender of an enterprise that had absorbed so much French enthusiasm and entailed such sacrifices on the



French people that the directors were unwilling to shoulder the responsibility of carrying out the arrangement, and all resigned. The trustees of the de Lesseps company, in particular, were reluctant to sanction the total transfer of the entire management and control from France to America. A new board of directors was chosen, which continued the negotiations with the American company, and the transfer was made.

The legislative action by which the American congress decided upon the Panama canal route as the most feasible and practicable and passed the bill under which President Roosevelt is authorized to acquire the American Panama Canal Co.'s rights is recent and familiar history. The advocates of the Panama route made effective use of facts concerning volcanoes along the Nicaragua route for the rejection of that route. The price that the United States government is to pay the Panama Canal Co. of America for its rights and privileges is \$40,000,000. The cost of the completed canal is estimated at \$184,233,358. As soon as final action is taken by the United States authorities, by which the United States government is to be committed to the building of the Panama canal, contractors can go down to Panama and commence work, for good housing accommodation is there for an army of from 15,000 to 20,000 laborers. There is a railroad along the whole length of the canal, terminating on each ocean front in a good harbor, with ample wharf and dockage facilities. The Panama canal, it is said, presents only one really serious engineering difficulty, and that is the control of the waters of the Chagres river. The river has a maximum flow of 75,000 cubic ft. a second. By the erection of dams it is proposed to conserve the waters of the river in a summit lake. The plans for accomplishing that have been pronounced feasible by many eminent engineers. The length of route of the Panama canal is forty-six miles, and the estimated time of transit for an ordinary ship is fourteen hours.

#### ANOTHER IMPORTANT WINDLASS IMPROVEMENT.

A very important windlass improvement—an elastic yielding attachment—is being introduced by the American Ship Windlass Co. of Providence, R. I. This company, which has been in business since 1857, has always occupied a foremost position in their line of special ship machinery in this country and attained an international reputation a few years ago through the introduction of the well-known Shaw & Spiegle steam towing machine. New devices and improvements which they have introduced have all been of a successful and lasting kind and they are satisfied that the windlass embodying this improvement, which will be known as the "Providence patent elastic capstan windlass," will be the windlass of the future. The inventor of the improvement is Capt. Charles W. Blake of Bridgeport, Conn. The American Ship Windlass Co. are to be the sole builders during the life of the patent. The great advantage of the new windlass is that it will prevent the parting of the chain, the breaking of the anchor and the breaking of the windlass, and will enable a vessel to hold on a great deal longer without breaking out anchor than is possible with the other style of windlass. With this new windlass there is not the solid, sharp shock on the chain that there is with the old style of windlass. Consequently the tendency is for the same weight of anchor to hold on very much longer without dragging. The first windlass of the new type was made a short time ago for the schooner Perry Setzer, a large four-masted vessel building at Bridgeport, Conn., for Capt. M. W. Blake. A practical vessel man who is fully acquainted with this windlass improvement says of it:

"The progress that has been made with windlasses and anchors, even within the past few years, is wonderful. It is amazing to see the stockless anchor of today released with little more difficulty than attends the pushing of an electric button, and to see it taken aboard again, with the chain stowing itself in the locker, by simply turning a steam valve. But this improvement is intended to meet conditions that are of as much importance as rapid handling of the windlass. When a harbor can not be made on account of heavy weather, fog or other unfavorable conditions this new type of windlass comes into play. On a lee shore with little or no sea room anchoring is almost necessary. It has been proven that a vessel will live longer in rough seas anchored than "hove to," since she will then be head to the seas and not side to them, as is liable when "lying to" under sail. Heavy running seas have always made anchoring dangerous, because of the liability of parting the chain, losing the anchor, or breaking the windlass, which often results in stranding and probably loss of the vessel. Seldom would a vessel strand if her anchors would hold and chain and windlass stand the sudden and heavy strains caused by the vessel lifting with the seas. With old types of windlass this heavy strain comes rigid; there is no give and something is apt to part or break. With this improvement danger is reduced to a minimum, owing to its having powerful elastic arrangements that give and take as the strain increases or diminishes, thereby relieving rigidity and enabling a vessel to hold to anchor in an open sea almost as easily as in a land-locked harbor."

The windlass shaft is mounted on three bitts, and carries two wildcats, two friction brakes and spring heads, two positive driving heads, two gypsy ends and one starboard bevel gear, and one bevel gear spring head. Each wildcat is provided with suitable pockets on the inner flange for the reception of springs. The friction brake and spring heads are also provided with such pockets placed opposite to those in the wildcats. There is a suitable amount of space left between the lugs in which these pockets are formed so as to allow the springs to compress when the strain comes on the chains. In the opposite end of these spring lugs is placed a suitable rubber spring, to take the rebound which occurs when the strain is relieved. Each friction brake and spring head has a positive locking device, worked by raised cams on the periphery of a locking ring and slotted block keys and operated by means of a lever. The block keys are in full sight of the man operating the windlass and the entire operation of locking or unlocking the windlass is accomplished by one motion of the lever through an angle not exceeding 60°. The wildcat is controlled by a friction band brake on the friction brake and spring head and operated by a cam and lever arrangement. Each wildcat can also be locked fast to the friction brake and spring head by means of block keys.

The capstan is driven from the windlass shaft by means of bevel gears. The pinion gear is loose on the upright shaft and is driven by means of a suitable clutch, so that the capstan can be worked without turning the windlass. The bevel gear for driving the capstan is provided with suitable pockets for the reception of springs, and the bevel gear spring head

is also provided with such pockets, placed opposite to those in the bevel gear. There is a suitable amount of space left between the lugs in which these pockets are formed so as to allow these springs to compress when the strain on the chain is such that it has compressed the springs in the wildcat. In the opposite end of these spring lugs is also placed a suitable rubber spring to take the rebound which occurs where the strain is relieved. The bevel gear can also be locked fast to the head by means of block keys. The bevel gear spring head also carries the ratchet which holds the windlass from turning backward, and therefore the total strain on the chain is divided between the springs in the wildcat and the springs in the bevel gear.

#### INCREASING COST OF ARMIES AND NAVIES.

From the St. James' Gazette (London).

The increasing cost of our army and navy is beginning to impress the taxpayer to the point of uneasiness. But a glance at the progress of warlike expenditure in foreign countries shows that we are merely keeping the lead which has always been deemed necessary with regard to naval strength; while the burden of the army, if heavy in pounds sterling, is incomparably lighter than that of continental nations, because of the absence of universal military service. Still, a comparison of the present expenditure with that of twenty years ago furnishes food for reflection, if not for anxiety.

Taking the "ordinary," as annually recurrent, expenditure of the six great powers, we find that Austria-Hungary spends the smallest sum on the navy:

In 1882 it amounted to only.....£ 765,000  
In 1902 the estimates were.....1,283,000

Germany comes next in point of magnitude of expenditure, but the amount of the "ordinary" outlay on her navy is comparatively small. Germany, of course, is making great efforts to strengthen her power at sea, and her "extraordinary" expenditure is very great. But by a financial fiction this is set down to capital account, so to speak. At any rate, the taxpayer is flattered into the belief that it is exceptional, although experience proves that it is as certainly recurrent as the ordinary expenditure. Germany's ordinary expenditure on her navy was:

1882 .....£1,400,000  
1892 .....3,995,000

Her progress will be even more rapid in the future, and by the time that the new ships are built, the annual expenditure will have reached a very high figure.

Italy shows a similar advance. Taking the lira at the current rate of exchange, Italy spent:

In 1882 .....£1,910,000  
In 1902 .....4,640,000

Russia's naval expenditure has increased enormously in the past twenty years, although the fact has not excited so much attention in this country as the advance of our near German neighbor. Russia spent on her navy:

In 1882 .....£2,751,000  
In 1902 .....9,832,000

In France the increase has not been so large, but the actual sum expended is greatly in excess of that of any other continental power. France's naval outlay was:

In 1882 .....£ 8,546,000  
In 1902 .....12,480,000

Our own expenditure stands out in an alarming manner in contrast with these smaller naval fry. We spent:

In 1882 .....£10,561,000  
In 1902 .....30,875,000  
In 1902-'03 .....31,255,000

If the first lord of the admiralty had to defend, in parliament, the enormous expansion from 10½ to 30¾ millions during the short period of twenty years, he could point triumphantly to the fact that our ratio of increase has been exceeded by one rival power and nearly equalled by another. This soothing circumstance is shown in the following table:

#### PERCENTAGES OF INCREASE IN NAVAL EXPENDITURES FROM 1882 TO 1902.

	Per cent		Per cent.
France .....	46	Germany .....	183
Austria-Hungary .....	68	Great Britain .....	192
Italy .....	143	Russia .....	257

But another color is given to the fact if it be set out in pounds sterling. We commenced the period with so much larger an expenditure than any other power, that our increase of 192 per cent. exceeds that of all the other powers taken together. While the total expenditure of the five continental nations advanced by a sum of £16,847,000, our navy cost us £20,314,000 more in 1902 than in 1882.

#### ACTUAL INCREASE IN NAVAL COST 1882 TO 1902.

Austria-Hungary .....	£ 513,000	France .....	3,934,000
Germany .....	2,585,000	Russia .....	7,081,000
Italy .....	2,730,000	Great Britain (1902-'03) ..	20,314,000

#### NAVAL ENGINEERING LABORATORY.

Representative Foss, chairman of the naval committee of the house of representatives, has introduced a bill to establish a naval engineering laboratory to be known as the Melville engineering laboratory after Rear Admiral George Wallace Melville, chief engineer of the navy. Mr. Foss says that the laboratory is urgently needed, and that it is most appropriate to name it after the one who has been so prominently identified with the engineering branch of the navy. Another consideration has been that the naval personnel act operated to merge the identity of Admiral Melville's corps in the line of the navy. The friends of the measure call attention also to Admiral Melville's services in the arctic region, where he was one of the foremost of the Jeannette expedition. The bill provides that the laboratory shall be on government land designated by the secretary of the navy, to cost with equipment not exceeding \$400,000, of which \$200,000 is appropriated.

Congress passed before adjournment a bill providing for a new customs boat for Philadelphia at a cost of \$50,000.



### THE CANAL OF THE TWO SEAS.

Discussing the proposed canal through France under the title "The Canal of the Two Seas," Engineer of London says:

Under the above title an old maritime project, surpassing in magnitude and importance all similar engineering undertakings, has been revived and is at present under serious consideration in France. It has for its object the construction of a canal from the Atlantic to the Mediterranean, or localising the route more precisely, from the waters of the Gulf of Lyons to the Bay of Biscay. The southern entrance of this magnificent inland waterway will, it is proposed, be at Narbonne. After gaining the basin of the Garonne, which it will follow for a certain part of its course, it will take the line of the Gironde to its mouth. It will have a total length of 312 miles. It may be here stated, for the sake of comparison, that the lengths of the best known ship canals are as follows: The Suez, ninety-eight miles; the Baltic, sixty-one; the Manchester, thirty-five; the Terneuzen, twenty; the Amsterdam, sixteen; the Bruges, eight; and the Corinth, four miles. Of all these, the Suez and the Corinth are the only two which have open channels, completely unimpeded by locks. The Panama canal was intended to have a length of forty-six miles, and 170 miles is the length of the course marked out for the Nicaragua.

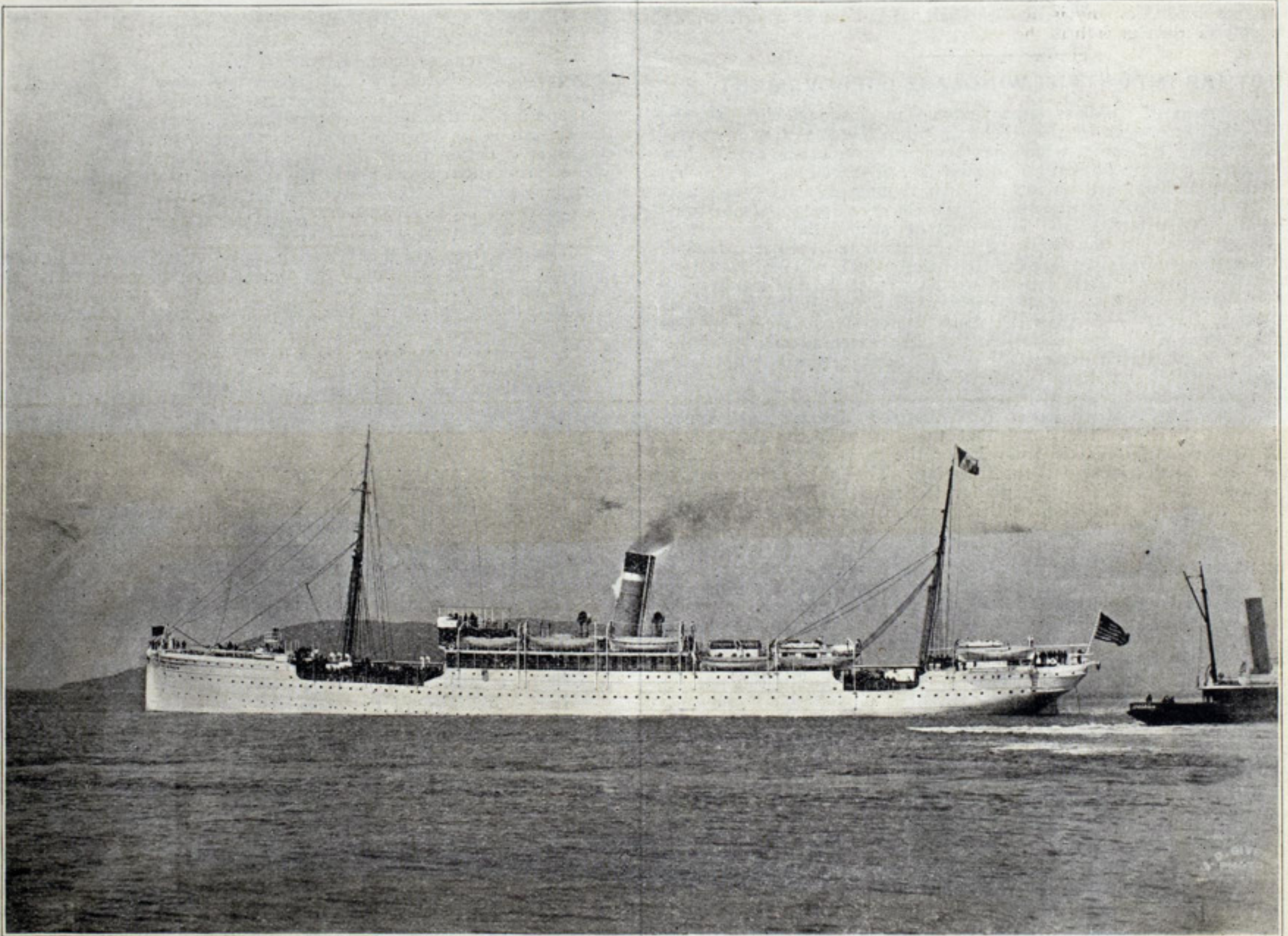
Apart from the magnitude of the projected undertaking, it possesses a very considerable amount of interest, not only for ourselves, but also for the rest of Europe. Once constructed, it would be no longer necessary for the fleets of the northern European powers to run the gauntlet

opened for traffic a few years afterwards. It was not, however, until the year 1900 that, for the first time, the receipts paid the expenses, amounting to £105,000. It is expected that when the returns for last year are compiled, the revenue will exceed the expenditure by about £10,000. Nothing is received from the passage of men-of-war, as they are not liable to navigation dues. The promoters of the great French enterprise are employing all their efforts to obtain an official declaration that the construction of the proposed canal is d'utilite publique. That once accomplished, the first step, which costs so much, is removed, and the actual prosecution of the work materially facilitated. The cost of the whole undertaking, which at present can be but approximately estimated, is put at fifty-two millions of our money.

### COMPLIMENT TO NEW YORK NAUTICAL COLLEGE.

Clement A. Griscom, Jr., manager of the American line, pays a compliment to the New York Nautical College in the July number of Success. Following is the final paragraph in his article to young men on the "American Merchant Marine as a Career":

"For young men who have an opportunity, a supplementary course of study in the New York Nautical College is of great advantage. Many of our officers go to the college to brush up in the science of navigation, and nearly all the yacht owners in New York harbor have been instructed there. Navigation is taught with the aid of a complete set of working instruments. Every student learns the use of the compass, the navigator's chart, the log, the chronometer, the quadrant, the octant and the sextant.



(Photograph by J. D. Givens, San Francisco, Cal.)

UNITED STATES TRANSPORT GRANT.  
In the San Francisco-Manila Service.

along our shores to reach the Mediterranean. The importance of Gibraltar would be seriously diminished. The western gate of the great sea would no longer be all ours. What the Baltic canal is to Germany, so would that of the two seas be to France, but to a much greater extent. It is estimated that in a voyage from Havre to Marseilles and Genoa, via the French canal, there would be a saving of about 1,000 miles, in comparison with the present route through the straits of Gibraltar. All ships voyaging from northern ports to the Mediterranean and the east would benefit to the same extent. Owing to the great differences of level encountered along the course of the proposed maritime works it is not possible to avoid the introduction of locks. Their number is rather formidable, amounting as it does to twenty-six. But even allowing from half to three-quarters of an hour for a big ship to get through, the time lost would not appreciably affect the saving between the two above-mentioned routes. It will be allowed that the security of the transit through the canal is a consideration and counts for something, although not to quite the same extent as it would have done in the days of sailing ships. Great ship canals may be regarded from two general points of view—a strategic and a commercial one. In the present instance there may, perhaps, be doubts respecting the future financial success of the scheme, but none regarding its great strategic value and importance.

It is worth noting that the sinister predictions that the Baltic canal would possess no commercial value have been completely falsified. Yet this was in every sense a military canal. It was commenced in 1886, and

He learns how to calculate the latitude and the longitude of a ship by the sun, moon, planets and stars. He becomes familiar, too, with weatherology and the laws of storms. The seamanship department of the college is equipped with large working models of catboats, sloops, cutters, yawls, schooners, brigs, barks, and ships, perfectly rigged in every detail, affording opportunity for handling and learning all the names of the various parts of fore-and-aft yachts and merchant vessels, as well as the particulars of square-rigged pleasure craft and cargo vessels. A room is set apart as a rigging loft and furnished with cordage, tools, blocks, pin rails, and all appliances for marlin-spike work, and in the model room masts are stepped, spars sent aloft, standing rigging set up, blocks hung, rigging rove off, and sails bent, set, reefed, and furled in an orthodox manner."

The American Steel & Wire Co. certainly received its share of awards from the South Carolina Inter State and West Indian Exposition. Gold medals were awarded for merchant iron and steel, cold-drawn steel shafting, wire nails, rail bonds, wire rope, machinery and appliances for drawing wire, springs and spring wire, copper, horse and mule shoes, iron and steel, and aluminum wire; silver medals for bicycle and automobile spokes, rolled wagon skeins, underground and overhead wires and cables and metallurgy of zinc; bronze medals for music wire, coal and coke, bale ties, chemicals and colors. The medals of gold, silver and bronze represent the highest awards in each class.



## LAKE NAVIGATION IN 1819.

The Cleveland Plain Dealer published an article on lake navigation last Sunday in which it quoted some interesting particulars from a log book kept by Frank Kelly, master of the *Hornet*, a freight boat which plied on Lake Erie. In the fall of 1819 Kelly wrote:

"A lighthouse is now being erected at Erie, one is soon to be built at Cleveland, Buffalo has the contract let for one. These will greatly add to the success of the lake trade. A great change is on the point of taking place; the steamboat is about to commence running on this lake, shoals and sandbars are in better condition than they have been since I began sailing, and new harbors are being opened. I expect to see a big increase in tonnage in the next few years. At Cleveland a bar across the entrance (as usual) is the only obstacle to making it a good port. There is 20 ft. or more of water and we have no trouble in running five miles up. I think that Grand river harbor is going to be the best on the lake. It is deep and in the best location and the bar is soon to be taken away. Buffalo would be a grand harbor if they would spend \$30,000 in fixing it up. Some rich fellows have taken hold of Dunkirk port and are making some great improvements. I understand that a new boat is to be built at Conneaut or Ashtabula next year to compete with our line in the whisky and produce trade."

Mr. Kelly seems to have been of a very observing disposition. He was quite justified in believing that Grand river harbor would be one of the best on the lakes; but that it is not merely shows that harbors must have something more than natural conditions to make them grow. Grand river harbor (Willoughby) is one of the best natural harbors on Lake Erie. A Cleveland company is now seeking to develop it and probably it will have a decided growth in the future.

At the time that Mr. Kelly wrote his observations in 1819 there were fifty-one vessels of over 10 tons burden on the great lakes. The list, as taken from the customs records, was:

American Eagle—Cleveland	45.67
Aurora—Sandusky	31.69
Black Snake—Cleveland	21.03
Boxer—Detroit	16.60
Dove—Detroit	13.25
Decatur—Detroit	39.99
Gen. Scott—Sandusky	20.23
Gov. Cass—Detroit	30.58
George Washington—Presque Isle	99.73
Friendship—Cleveland	59.10
Firefly—Detroit	24.09
Franklin—Presque Isle	73.00
Eliza—Sandusky	23.82
Eagle—Detroit	28.03

Erie—Buffalo	77.41
Experiment—Buffalo	29.69
Diana—Cleveland	8.00
Diligence—Presque Isle	32.38
Pilot—Cleveland	27.05
Sloop Perseverance—Presque Isle	28.65
Ranger—Detroit	16.79
Tramp—Cleveland	35.08
Superior—Presque Isle	70.78
Lucy Jane—Presque Isle	15.00
Traveler—Cleveland	22.23
Union—Buffalo	104.30
Venus—Sandusky	14.00
Widow's Son—Detroit	40.79
Wasp—Sandusky	18.00
Wolf—Sandusky	28.78
Jackson—Detroit	60.00
Brown—Sandusky	31.22
Wayne—Buffalo	85.38
Hanna—Buffalo	48.73
Hercules—Detroit	59.18
Hornet—Cleveland	11.64
Industry—Sandusky	13.23
Independence—Sandusky	21.00
Leopard—Sandusky	18.00
Michigan—Buffalo	132.36
Monroe—Detroit	28.70
Maria—Detroit	24.28
Miami—Detroit	10.46
Merchant—Cleveland	21.51
Nautilus—Sandusky	23.00
Neptune—Cleveland	61.64
Olive Branch—Detroit	14.19
Commodore Perry—Presque Isle	42.50
Salem Packet—Buffalo	27.00
Buffalo Packet—Buffalo	12.00
Paulina—Buffalo	27.20

Total tonnage of vessels .....1,867.03

Part of the contracts for the Detroit Iron & Steel Co.'s blast furnace have been let as follows: Blowing engines, William Tod & Co., Youngstown, O.; excavation, piling and concrete, D. J. Kennedy & Son, Detroit; stoves and furnace, the Riter-Conley Co., Pittsburgh; structural iron work, bins, trestles, Russel Wheel & Foundry Co., Detroit; boilers, Aultman-Taylor Machinery Co., Mansfield, O.

## "Benedict-Nickel" Seamless Condenser Tubes Resist Electrolysis

"BENEDICT-NICKEL" Seamless Condenser Tubes are the only tubes that are *not* readily affected by Electrolysis.

"Benedict-Nickel" is an alloy of nickel and copper. The tubing is stronger, tougher and denser than any other. By hot rolling a solid cylindrical billet upon a forming mandrel, it is made like a twist gun barrel.

Send for treatise, "Electrolysis of Condenser Tubes," which gives full scientific reasons for the superiority of "Benedict-Nickel."

We are also large manufacturers of brass and copper tubing, made by the same process as "Benedict-Nickel," and of brass and copper sheets, wire, etc.

BENEDICT & BURNHAM MFG. CO.,

Main Office and Factory, Waterbury Conn.  
New York, 253 Broadway. Boston, 172 High Street.

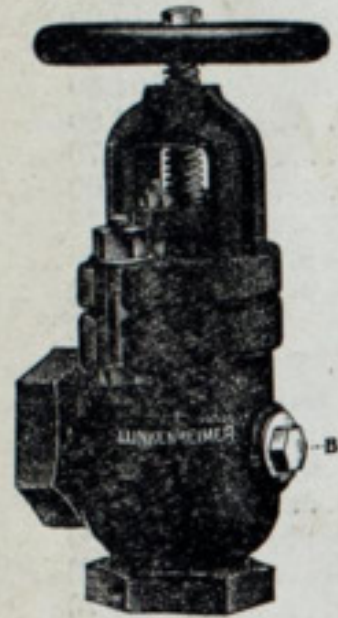
V. Waring, N.Y.



**DURO BLOW-OFF VALVE.**

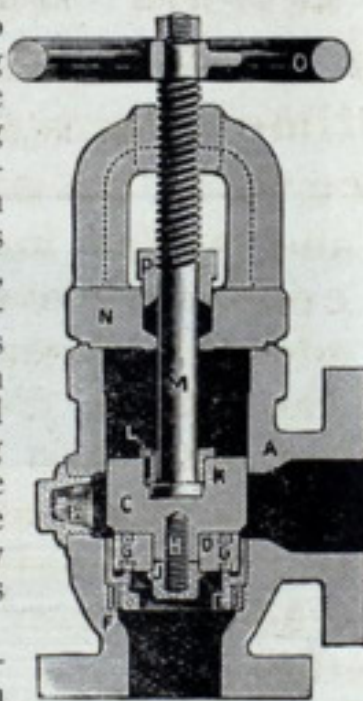
The Lunkenheimer Co. of Cincinnati asks that the attention of readers of the Review be directed to the type of blow-off valve to which they have given the trade name "Duro." In a circular dealing with this valve they say:

"Blow-off valves have probably given more trouble than any of the other fittings which are part of the boiler equipment. Many kinds have been offered upon the market which are claimed to possess the chief requisite in valves of this kind, namely, durability. We have made blow-off valves of various kinds for a great many years and fully appreciate the difficulties that have been encountered in designing a really satisfactory valve. While we have made several varieties and types which have given fair satisfaction, our search for a really durable construction has not met with success until within the past two years.



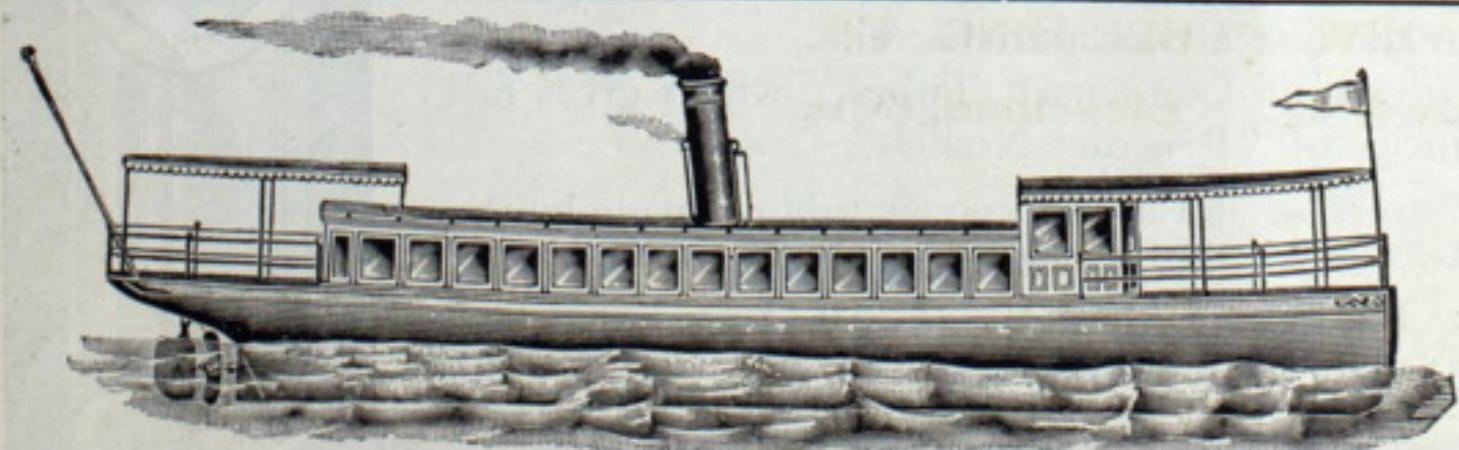
"Referring to the illustrations herewith it will be seen that the general form of this new valve is quite similar to the iron body angle blow-off valve which has been so extensively used for some years past. The object of this improved valve is to include whatever merits the old-style valve possessed, and, in addition, a distinctive feature, the novelty of which will at once impress users of its practicability. Heretofore in all makes of blow-off valves the seat was so located that as the disc approached same there would be an accumulation of scale and sediment. The effect of this accumulation would be to cut out the bearing surfaces to such an extent that in a short time the valve would become leaky. Various methods have been invented whereby the disc would fit tightly in the valve body, the object being to prevent the scale from passing on the seat bearing after the disc had passed and cut off the inlet. This method, however, has not proven satisfactory, as the valve body would soon wear, and, in a short time, permit the passage of scale and sediment. In the 'Duro' valve these defects have been overcome. The plug fits snugly in a separate and easily-removable bronze casing, which can be readily replaced when worn. Any accumulation of scale or sediment that might remain on the seat before the disc is brought in contact with same, is washed off by the water which passes around the plug when seating.

"In the sectional view it will be seen that plug (C) carries a reversible double-faced disc (D), secured to plug (C) by stud (H) and nut (J). This plug (C) is guided perfectly in the valve body (A). The bronze seat ring (E) is screwed into a second brass ring (F), the object of this being to make it possible to renew (E) very easily in case same is worn. At the back of the valve is a plug (B), the use of which is to permit the introduction of a rod to clean out the blow-off pipe when desirable. The stem (M) which raises and lowers the disc (C) is held in place by lock nut (L), which is prevented from unscrewing by non-rotating washer (K). It will be seen from this description that all parts of the valve have been so designed that they can be easily renewed when worn or broken. The disc (D), having two Babbitt-faced bearings (G), (G), it can be replaced at small cost, or the user of the valve can melt out the old Babbitt and pour in new metal, and, after this is faced off, the disc is as good as new.



"In operating the 'Duro' valve, when it is desirable to close same the disc is screwed down in the usual manner. As the edge of disc (D) approaches the cylindrical extension of (E) these edges shear and cut off any scale or sediment which might pass. As the disc (D) continues to approach the seat bearing (E), the leakage of water around same will effectually wash off any scale or sediment which might have accumulated thereon. The result of this is, that when the disc is perfectly seated no scale or sediment can remain between the bearings. In other makes of blow-off valves there is no provision made for washing off the seat bearing or renewing the part (E), which, in time, will be worn by the shearing of the disc (D) when cutting off scale and sediment. As both of these parts can be renewed very easily and at small cost, it will be plain that the valve is very durable and will last indefinitely. All parts are heavily and substantially constructed. It has been in practical use and tested under every variety of service for almost two years. These valves are made in three sizes—2, 2½ and 3 in.—with screw, flange or screw and screw ends. Where flange-end valves are required for pressure 125 lbs. and above we advise that the valves should have heavy dimension flanges."

A four-masted wooden schooner, building at the Houghton Bros. yard, Bath, Me., by Capt. J. W. Hawley, will be named Fred A. Davenport. The three-masted schooner at the New England yard of Capt. M. D. McKown will bear the name of Alice M., for a daughter of Mr. Davenport.



**MARINE IRON WORKS,**

**ONLY ONE SPECIAL SEASHORE EXCURSION.**

Only one special excursion to the seashore will be run via Pennsylvania lines this summer. The date fixed for it is Thursday, July 31. On that date special rate round-trip tickets to ten of the most attractive seaside resorts along the Atlantic coast will be sold and special through car service will be arranged for the convenience of persons wishing to visit Atlantic City, Cape May, Avalon, Anglesea, Holly Beach, Ocean City, Sea Isle City, Wildwood, New Jersey, Ocean City, Maryland, or Rehoboth, Delaware. The return limits on tickets to either resort will cover the customary ten days vacation. For special information regarding fares, etc., consult nearest ticket agent, or address C. L. Kimball, A. G. P. A., Cleveland. July 3.

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of modern vessels especially those in the passenger service should demonstrate the supreme possibilities of the wood finisher's art.

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FACILITIES FOR CASTINGS UP TO  
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MACHINE WORK AND PATTERNS  
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Its statistics of waterborne commerce are thoroughly reliable. The section devoted to the commerce of the great lakes with its iron mines and their output, its coal trade and dock facilities, its grain trade and elevators, its ships and their owners, is very thorough and absolutely authentic.

The rear pages of the Blue Book are devoted to a **BUYERS' DIRECTORY** of the **MARINE TRADE**—that is a list of manufacturers of ship yard equipment and ship supplies, arranged under the titles of the articles which they make, for the benefit of the buyer, who is usually the ship builder or ship owner. By ordering a copy of the Blue Book in advance your name will be inserted in the Buyers' Directory under various headings suited to your business without extra charge. The price of the Blue Book is \$5.

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The Blue Book enjoys an extended patronage throughout the United States and Canada and a considerable favor in Great Britain and Europe. We, therefore, commend it as a medium where-with to reach the foreign field.

The Blue Book is now in preparation for the press and will be published within three weeks. If you would like to know more about it, a postal card will fetch a little booklet.

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39-40-41 Wade Bldg., Cleveland, Ohio



### GERMAN AGREEMENT WITH THE MORGAN COMBINATION.

The North German Lloyd Steamship Co. has issued a circular to its stockholders explaining the agreement which has been entered into with Mr. J. Pierpont Morgan and the Atlantic combination. While it contains nothing new the translation may be of interest. The circular reads:

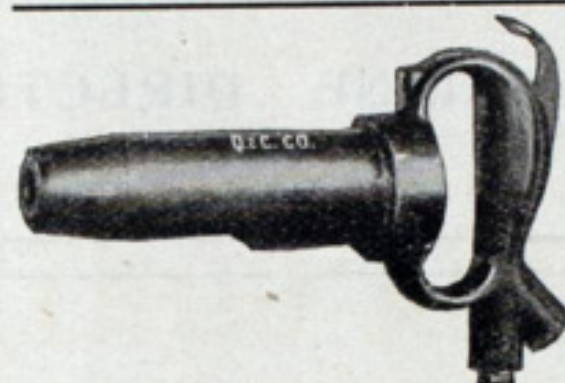
"In the report submitted to the general meeting held on April 19 last, mention was made of negotiations which we had entered into with the English and American steamship companies holding friendly relations with us with the object of establishing a certain community of interests in order to secure for a long period fixed rates in the North Atlantic traffic, and at the same time to protect the individual companies in the business hitherto transacted by them against the competition of the other companies. The negotiations conducted with the same objects between the greater number of the American and English companies engaged in the North Atlantic trade have, in the meantime, led to the formation of an organized combination of these companies which sets up a complete community of interests among themselves. For the German companies, whose competition with the English and American lines is for the most part limited to the first-class passenger trade, there could be no inducement to join this new organization; the question of any adhesion of the kind has, consequently, never been the subject of the negotiations carried on by us in conjunction with the Hamburg-American line. Neither have we been able to recognize in the creation of this new combination—which substitutes a compactly organized body for the extraordinarily inconvenient many-headedness (*Vielköpfigkeit*) of the Anglo-American group of interests—or in any of the accompanying circumstances, any danger for the existence or independence of the German steamship lines, so that no considerations in this direction have had any influence on the decisions we have formed. The negotiations, which proceeded on the basis of a reciprocal recognition of complete independence and self-dependence, have had for their sole object the regulation of mutual business connections by means of conventional agreements in so far as they should appear calculated to obviate the danger of a more acute competition, and to secure a close co-operation in the future. The main point of the conventions concluded is the settlement of the mutual spheres of interest in the traffic across the North Atlantic in such a manner as to correspond with the degree of development to which this traffic has attained, while, as regards the other points, nothing has been agreed to which could lead to any limitation in the future development of our lines. Arrangements have also been made with reference to pool-partnerships, and to a limited participation by the Anglo-American group of interests in the profits earned by our company amounting to the ownership of shares of the value of 20,000,000 marks, while, in return, the syndicate undertakes to pay to the German companies 6 per cent. interest upon a like amount of capital. Lastly, a committee of four is to be formed for the purpose of settling all important matters in common consultation and by unanimous voting, so

that, neither as regards ordinary business questions, nor to questions of tariff-policy, will our independence be jeopardized."

A Chicago dispatch says: Appraisers have fixed the value of the wrecked steamer Hadley, as she lay on the beach at Duluth, after her release following collision with the steamer Wilson, at \$23,127, exclusive of \$13,000 for wrecking expenses and \$1,000 for cargo and incidentals. Report of the finding has been received in Chicago by Attorney C. E. Kremer, from Howard T. Abbott, one of the appraisers. Under the limited liability act the owners of the \$100,000 whaleback steamer Thomas Wilson, sunk by the Hadley, can get judgment only for the appraised value of the Hadley in case suit is brought, as is expected. As facilities for repairing wooden boats at Superior are not good, the Hadley has been ordered to Milwaukee for repairs.

The clause in the naval appropriation bill providing for a battleship to be built in a government yard makes clear the intention of the navy department that the battleship shall be built at the yard where it can be constructed with the greatest rapidity and facility. Boston, New York, Norfolk and Mare Island are the yards best equipped at present, and from which selection will be made. Secretary Moody already has set about the selection of the commission which will make an inspection to enable the department to locate the training station on the great lakes and probably will announce its personnel in a day or two.

Partially as a result of the acquisition of the Bethlehem Steel Co., the capital stock of the United States Ship Building Co. will be increased from \$20,000,000 to \$45,000,000. The capitalization will be divided into \$20,000,000 preferred and \$25,000,000 common stock. The original issue provided for \$10,000,000 preferred and a similar amount of common stock.



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# BELLEVILLE GENERATORS

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Originated 1849

Hors Concours 1900  
Latest Patents 1902

Number of Nautical Miles made each year by Steamships of the Messageries Maritimes Co., Provided with Belleville Generators—Since their Adoption in the Service.

Year.	Australien	Polynésien	Armand Béhic	Ville de la Ciotat	Ernest Simons	Chili	Cordillère	Laos	Indus	Tonkin	Annam	Atlantique
1890.....	67,728	2,460										
1891.....	68,247	68,331	204									
1892.....	68,247	68,403	69,822	23,259								
1893.....	68,379	68,343	68,286	68,247								
1894.....	68,439	68,367	68,574	68,439	37,701							
1895.....	68,673	68,766	68,739	68,808	40,887	28,713						
1896.....	69,534	92,718	69,696	69,549	62,205	63,153	40,716					
1897.....	68,250	69,606	92,736	69,555	62,235	76,110	63,357	43,146				
1898.....	70,938	69,534	69,552	69,597	62,526	63,240	63,240	62,553	63,954	22,707		
1899.....	69,534	69,615	67,431	90,405	60,246	62,778	62,868	52,344	54,855	44,007	22,884	
1900.....	69,534	67,494	69,744	69,564	61,719	62,382	62,502	51,471	53,373	62,016	63,066	52,140
1901.....	44,220	69,627	69,594	66,948	51,057	62,460	62,490	61,743	62,688	43,866	62,466	63,126
Total.....	801,723	783,264	714,378	664,371	438,576	418,836	355,173	271,257	234,870	172,596	148,416	115,266

ATELIERS ET CHANTIERS DE L'ERMITAGE, À ST. DENIS (SEINE), FRANCE.

WORKS AND YARDS OF L'ERMITAGE AT ST. DENIS (SEINE), FRANCE.

TELEGRAPHIC ADDRESS: BELLEVILLE, SAINT-DENIS-SUR-SEINE.